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Guidance for the Reregistration of Pesticide Products Containing Bendiocarb as the Active Ingredient

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This document contains information regarding the registration of pesticide products containing the subject active ingredient. The document includes how to register under a registration standard, regulatory position and rationale, and summaries of date requirements and data gaps. Also included is a bibliography containing citations of all studies reviewed by EPA in arriving at the positions and conclusions contained in the standard.

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GUIDANCE FOR THE REREGISTRATION OF PESTICIDE PRODUCTS

CONTAINING

BENDIOCARB

105201

AS THE ACTIVE INGREDIENT

CASE NUMBER 409

[CAS 22781-23-3]

OCTOBER 28, 1987

ENVIRONMENTAL PROTECTION AGENCY

OFFICE OF PESTICIDE PROGRAMS

WASHINGTON, D.C. 20460

United States
Environmental Protection
Agency

Office of
Pesticides and Toxic Substances
Washington DC 20460

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Pesticides

OCTOBER 1987

EPA

Guidance for the Reregistration of Pesticide Products Containing Bendiocarb as the Active Ingredient

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EPA Form 8570-27	Generic Data Exemption Statement

I. INTRODUCTION

EPA has established the Registration Standards program in order to provide an orderly mechanism by which pesticide products containing the same active ingredient can be reviewed and standards set for compliance with FIFRA. The standards are applicable to reregistration and future applications for registration of products containing the same active ingredient. Each registrant of a product containing an active ingredient subject to this Standard who wishes to continue to sell or distribute that product must bring his product and labeling into compliance with FIFRA, as instructed by this Standard. Pesticides have been grouped into use clusters and will be reviewed on the basis of a ranking scheme giving higher priority to (1) pesticides in clusters used on food and feed crops; and (2) pesticides produced in large volumes.

The Registration Standards program involves a thorough review of the scientific data base underlying a pesticide's registration. The purpose of the Agency's review is to reassess the potential hazards arising from the currently registered uses of the pesticide; to determine the need for additional data on health and environmental effects; and to determine whether the pesticide meets the "no unreasonable adverse effects" criteria of FIFRA. In its review EPA identifies:

1. Studies that are acceptable to support the data requirements for the currently registered uses of the pesticide.

2. Additional studies necessary to support continued registration. The additional studies may not have been required when the product was initially registered or may be needed to replace studies that are now considered inadequate.

3. Labeling revisions needed to ensure that the product is not misbranded and that the labeling is adequate to protect man and the environment.

The detailed scientific review, which is not contained in this document, but is available upon request[1], focuses on the pesticide active ingredient. The scientific review primarily discusses the Agency's evaluation of, and conclusions from available data in its files pertaining to, the pesticide active ingredient. However, during the review of these data the Agency is also looking for potential hazards that may be associated with the end use products that contain the active ingredient. The Agency will apply the provisions of this Registration Standard to end use products if necessary to protect man and the environment.

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[1] The scientific reviews and Compendium of Acceptable Uses may be obtained from the OPP Public Docket. Write to OPP Public Docket, Field Operations Division (H7506C), Office of Pesticide Programs, EPA, Washington, D.C. 20460

EPA's reassessment results in the development of a regulatory position, contained in this Registration Standard, on the pesticide and each of its registered uses. See Section IV - Regulatory Position and Rationale. Based on its regulatory position, the Agency may prescribe a variety of steps to be taken by registrants to maintain their registrations in compliance with FIFRA. These steps may include:

1. Submission of data in support of product registration;

2. Modification of product labels;

3. Modifications to the manufacturing process of the pesticide to reduce the levels of impurities or contaminants;

4. Restriction of the use of the pesticide to certified applicators or other specially trained individuals;

5. Modification of uses or formulation types; or

6. Specification of packaging limitations.

Failure to comply with these requirements may result in the issuance of a Notice of Intent to Cancel or a Notice of Intent to Suspend (in the case of failure to submit data).

In addition, in cases in which hazards to man or the environment are identified, the Agency may initiate a special review of the pesticide in accordance with 40 CFR Part 154 to examine in depth the risks and benefits of use of the pesticide. If the Agency determines that the risks of the pesticide's use outweigh the benefits of use, the Agency may propose additional regulatory actions, such as cancellation of uses of the pesticide which have been determined to cause unreasonable adverse effects on the environment.

EPA has authority under the Data Call-In (DCI) provisions of FIFRA sec. 3(c)(2)(B) to require that registrants submit data to answer our questions regarding the chemical, toxicological, and environmental characteristics and fate of a pesticide. This Registration Standard lists the data EPA believes are necessary to resolve our concerns about this pesticide. These data are listed in the Tables A, B, and C in Appendix I. Failure to comply with the DCI requirements enumerated in this Registration Standard may result in issuance by EPA of a Notice of Intent to Suspend the affected product registrations.

Registrants are reminded that FIFRA sec. 6(a)(2) requires them to submit factual information concerning possible unreasonable adverse effects of a pesticide at any time that they become aware of such information. Registrants should notify the Agency of any information, including interim or preliminary results of studies, if those results suggest possible adverse effects on man or the environment. This requirement continues as long as the products are registered by the Agency.

II. CHEMICAL COVERED BY THIS STANDARD

A. Description of chemical

The following chemical is covered by this Registration Standard:

Common Name: Bendiocarb
Chemical Name: 2,2-dimethyl-1,3-benzodioxol-4-yl methylcarbamate
CAS Number: 22781-23-3
OPP (Shaughnessy) Number: 105201
Empirical Formula: $C_{11}H_{13}NO_4$
Trade names: Dycarb, Ficam, Garvox, Multamat, NC6897 Niomil, Seedox, Tatoo, and Turcam

Summary of physicochemical properties of an unspecified grade of bendiocarb:

Color: White (Crystalline)
Odor: Odorless to very slight odor
Melting point: 129-130 C
Bulk Density: 0.52 g/ml (loose), 0.62 g/ml (compacted),
Vapor Pressure: 5.0×10^{-6} mm Hg at 25°C
Stability: Chemically stable during 16 months storage at 40°C in sealed containers. No thermal breakdown at temperatures of up to 100°C
Solubility: Very slightly soluble in water and kerosene, highly soluble in nonpolar organic solvents.

B. Use Profile

Type of Pesticide: Insecticide
Pests Controlled: Household pests, mosquitoes, ornamental pests, and imported fire ants.
Registered Uses: Household, commercial buildings, outdoor mosquito control, greenhouse, ornamentals, aquatic nonfood (sewers), rodent burrows, wood and wood structure protection, fire ant mounds and food handling areas.
Predominant Use: Household Pest Control. (Insecticide)
Mode of Activity: Cholinesterase inhibitor
Formulation Types Registered: Dust, Wettable Powder, Ready to Use Solution, Granular, Soluble Concentrate Liquid, Shelf Paper.
Basic Registrant: NOR-AM Corporation
Number of Registrants: 20
Number of Product Registrations: 42
Special Local Need Registrations: 6
Methods of Application: Broadcast, Foliar Application, Dusting, Crack and Crevice, Soil Drench, and Premise Treatment.

Of the total amount of bendiocarb applied in the United States in 1983-1985, ~71% was used in professional applications to household, commercial, and structural sites, ~14% was used on ornamentals (including turf), ~12% was used on domestic indoor and outdoor sites, and ~3% was used for mosquito control. Application rates range from 1.52-32 oz ai/100 gal, 1-4 lb ai/A, 0.005-0.01 oz ai/burrow for rodent burrows, 0.0067-0.0133 oz ai/mound for fire ant mounds, 0.0026-0.011 lb/ai/A for mosquito control, and 0.07-0.14 oz ai/manhole for use in sewers. Bendiocarb may be formulated with petroleum distillates, piperonyl butoxide, and pyrethrins. Single active ingredient formulations consist of 0.5 and 1.0% Dusts, 2.5 and 5.0% Granulars, 20 and 76% Wettable Powders, 1% Wettable Powders/Dusts, 0.03175, 0.38 and 0.45% Impregnated Shelf Paper, 2.64 lb/gal Flowable Concentrates, 1.67 and 2 lb/gal Soluble Concentrates/Liquids, and 1.5 and 2 lb/gal Ready To Use, Bendiocarb is generally applied by broadcast or directed spray using ground equipment. The 5% Granulars, 76% Wettable Powders, 2.64 lb/gal Flowable Concentrates, the 1.67 and 2 lb/gal Soluble Concentrates/Liquids, and the 1.5 and 2 lb/gal Ready To Use formulations are recommended for use by Pest Control Operators only.

III. AGENCY ASSESSMENT

A. SUMMARY

The Agency has reviewed data in its files as of July 11, 1986, to support the registration of bendiocarb. Based on these data, EPA has reached the following conclusions. The points summarized below are presented in further detail, in the context of EPA's science findings and additional data requirements, in Sections B through D.

1. Bendiocarb exhibits moderate acute toxicity via oral and dermal routes of exposure. The toxicity is manifested as cholinesterase inhibition. In its technical form bendiocarb is categorized as Toxicity Category I due to oral toxicity. Most formulations of bendiocarb are categorized as Toxicity Category II and III.

2. No oncogenic response has been noted in either rat or mouse oncogenicity studies.

3. No reproductive or teratogenic effects have been noted.

4. Technical bendiocarb may potentially contain chlorinated dibenzodioxin or dibenzofuran impurities. Analysis of the technical product is required.

5. Bendiocarb is toxic to fish and aquatic invertebrates. Aquatic residue monitoring is required to determine actual levels of bendiocarb in aquatic environments subject to runoff from turf application.

6. Bendiocarb is acutely toxic to and may impair reproduction of birds. Avian field studies are required to support the use of bendiocarb on turf.

7. Bendiocarb is highly toxic to bees exposed to direct treatment.

B. PRELIMINARY HEALTH RISK ASSESSMENT

The following assessment is based on available data and is subject to change when the results of the required studies are available for Agency review.

1. Acute Toxicity

Technical bendiocarb has a high acute toxicity to rats; the acute oral toxicity for male rats is 45 to 48 mg/kg and for females is 34 to 40 mg/kg. Toxicity Category I.

Technical bendiocarb has an acute dermal toxicity of 566 mg/kg in rats. Toxicity Category II.

Adequate data are not available on the acute inhalation toxicity for bendiocarb. One study reported that an atmospheric concentration of 30 ug/m^3 did not result in obvious reactions in rats. An acute inhalation toxicity study is required.

Technical bendiocarb is only a slight irritant to rabbit eyes. Toxicity Category III.

Bendiocarb causes only minimum to mild irritation to the skin. Toxicity Category III.

No sensitization data are available on technical bendiocarb. A Magnusson-Kligman type study using FICAM 80W did not indicate that bendiocarb was a sensitizer. Based on this result, skin sensitization data are not required for the technical product.

Bendiocarb does not induce acute delayed neurotoxicity.

2. Subchronic Toxicity

The principal mechanism of bendiocarb toxicity and the only effect observed in subchronic testing in rats (No Observable effect level [NOEL] = 0.5 mg/kg/day) and dogs (NOEL = 0.5 mg/kg/ day) is whole blood cholinesterase (ChE) inhibition.

Two subchronic oral studies in rodent and non-rodent species are available. In one, twenty rats of each sex were dosed orally with diets fortified with bendiocarb at 0, 0.4, 2.0, 10, 50, and 250 ppm for 3 months. Compound-related effects were limited to cholinesterase depression at 50 ppm and above. The NOEL for this study was 10 ppm (0.5 mg/kg/day). Four beagle dogs of each sex were dosed with 0, 20, 100, and 500 ppm of bendiocarb in their diets for 16 weeks. Compound-related effects were limited to cholinesterase depression at 100 ppm and above. The NOEL in this study was 20 ppm (0.5 mg/kg/day).

No subchronic dermal toxicity study was available with technical bendiocarb. In a study with FICAM 80W, groups of 6 male rats were dosed with 0, 50, 100, 200, 400, and 800 mg/kg/day for 5 days per week for 3 weeks. A NOEL of 50 mg/kg/day for ChE depression was established. There were, however, some borderline effects on blood ChE reported at 50 mg/kg. At $\geq$ 200 mg/kg/day, behavioral effects were noted. The LEL was 100 mg/kg/day for both behavioral and ChE depression effects. At 800 mg/kg/day, there was some depresssion in body weight gain.

Because the indoor uses of bendiocarb may involve repeated or prolonged exposures by the inhalation route, a 90-day subchronic inhalation study is required.

3. Chronic Toxicity

Sufficient data are available to satisfy the data requirement for chronic feeding in a rodent (rat) and non-rodent (dog) species.

Fifty male and 50 female rats were dosed with 0, 10, 20, and 200 ppm for 104 weeks. Chemically-related effects were evident at 20 ppm and above. These included depression of blood cholinesterase and increased incidences of lenticular opacities. NOEL = 10 ppm (0.5 mg/kg/day).

Eight male and eight female beagle dogs were dosed with either 0, 20, 100, and 500 ppm for up to 104 weeks. The only compound-related effect noted was depression of blood cholinesterase at 500 ppm. There were no systemic effects noted. The NOEL for this study is 100 ppm (2.5 mg/kg/day).

4. Oncogenicity

Rat and mouse oncogenicity studies with bendiocarb are available. Neither of these studies demonstrated an oncogenic response. Oncogenicity studies in rats and mice have demonstrated that bendiocarb is not associated with obvious increases in neoplasms at up to and including 10 mg/kg/day in rats and up to and including 187.5 mg/kg/day in mice.

Fifty male and fifty female rats were dosed at dose levels of 0, 10, 20, and 200 ppm (highest dose level tested = 10 mg/kg/day) for two years. This treatment resulted in inhibition of blood ChE and increased incidences of "lenticular opacities" (both effects had NOEL's of 10 ppm and LEL's of 20 ppm) but no other signs of toxicity were evident.

The mouse study tested levels of 0, 50, 250, and 1250 ppm (highest dose level tested = 187.5 mg/kg/day). No oncogenic response was noted. ChE inhibition was not determined.

The rat and the mouse oncogenicity studies were conducted at dose levels which may not have reached the Maximum Tolerated Dose (MTD). The rat study was determined to have demonstrated at least some effects (depression of blood and some brain ChE activity and increases in lenticular opacities). Higher dose levels would be predicted to result in further depression of ChE with resulting expression of symptoms. Thus the highest dose level used is estimated to be greater than one half the apparent MTD.

Although no symptoms were evident in the mouse study and ChE levels were not tested for, the highest dose level used (187.5 mg/kg/day) greatly exceeded the highest dose level in the rat study (10 mg/kg/day) and is estimated to be near the level that is one half of the apparent MTD.

Neither the rat nor the mouse study showed evidence of induction of neoplastic effects associated with bendiocarb in the diet at the dose levels tested. Furthermore, bendiocarb is a carbamate pesticide with a structural formula that does not suggest an oncogenic potential.

Based on the above, no additional oncogenicity studies are required at this time. Additional oncogenicity studies on rats and mice may be required if the required mutagenicity studies show that bendiocarb is a potential mutagen.

5. Teratogenicity

No teratogenic effects or adverse effects on reproductive performance of rats were evident in teratology and reproduction studies with bendiocarb.

Three studies with rats are available. The first study tested dose levels of 0, 0.25, 1.0, and 4.0 mg/kg/day. No teratogenic effects were evident up to and including 4.0 mg/kg/day.

The remaining two studies were determined not to be adequate to evaluate teratogenicity because of inadequate test procedures. In one, rats were dosed at 0, 0.25, 1.0 and 4.0 mg/kg/day, but only limited teratogenic investigations were made. The other study was a part of the multigeneration reproduction study in which rats were dosed with 0, 10, 50, or 250 ppm of bendiocarb. The progeny from each of the three generations from this study were examined for possible teratogenic effects and none were evident.

Nineteen to twenty-two rabbit does were dosed with 0, 1.0, 2.5, and 5.0 mg/kg of bendiocarb during the period of major organogenesis. No obvious teratogenic effects were evident. Maternal effects included depression of blood cholinesterase (NOEL < 1.0 mg/kg) and a possible fetotoxic effect (anomaly in the appearance of the eyes. The NOEL in this study is 1.0 mg/kg and the LEL = 2.5 mg/kg.

6. Mutagenicity

No acceptable data are available on the mutagenicity of bendiocarb. A complete battery of mutagenicity studies is required.

7. Reproduction

Sufficient data are available to satisfy the data requirement for a multigeneration reproduction study. Groups of thirty male and female rats were dosed with 0, 10, 50, and 250 ppm (highest dose level tested = 12.5 mg/kg/day) of bendiocarb and three generations were produced. There were no obvious effects on reproductive performance (NOEL >250 ppm). The systemic NOEL was 50 ppm. At 250 ppm (LEL) there was a possible effect on the thyroid (increase in gland weight, not accompanied by pathological changes).

8. Metabolism

Sufficient data are available to satisfy the data requirements for the metabolism and pharmacokinetics of bendiocarb in laboratory animals.

Available metabolism studies with rats are of four main study types (single intravenous dosing, single oral dose, low level, daily doses of unlabelled bendiocarb followed by a single oral dose of labeled bendiocarb, and a single high dose which produced toxic signs). There were 5 -18 rats per sex per group depending upon the type of experiment.

In these studies, bendiocarb was shown to be rapidly absorbed from the gastrointestinal tract. The plasma half life was determined to be 4 to 8.6 hours with 77-99% of the radioactivity recovered in the urine within 72 hours, most within in the first 8 hours. Excretion via feces was not an important route of elimination. No unhydrolyzed bendiocarb was found in the urine. The major metabolite was identified as NC 7312 (the hydrolysis product of bendiocarb) and its conjugates. No evidence of selective organ storage was found and the usual tissue residue was <.05 ppm. Residues in tissues were higher for the rats dosed with the high dose of bendiocarb.

9. Dermal Absorption (Humans)

A dermal absorption study with ^{14}C-bendiocarb shows that bendiocarb can be absorbed by human skin and once absorbed is excreted in the urine. Absorption ranged from 53% to 64% on occluded skin, but only 8-16% on non-occluded skin.

10. Toxicology of NC 7312 (Principal metabolite)

Five groups of 5 male and 5 female rats were dosed with either 5, 20, 80, 320, or 1280 mg/kg day for 16 consecutive days with an aqueous suspension of NC 7312. No definite toxic responses were reported. At the highest test dose level there was a "slight" decrease in weight gain.

11. Exposure Assessment

Technical bendiocarb is classified as Toxicity Category II for acute dermal exposure. The Agency does not have worker exposure data for ornamental and lawn uses of bendiocarb. A foliar dissipation study is required to determine the dislodgeable residues that may result on turf and ornamentals.

The Agency does not have exposure data from indoor use. Incident data provided to the Agency by the State of California indicates that the majority of exposure incidents from indoor application of bendiocarb resulted when the product was applied while people or pets were present or in the immediate vicinity. Exposure from indoor applications can be reduced significantly if label instructions (1) prohibiting application when people and pets are present and (2) requiring ventilation of indoor spaces after application are followed.

12. Dietary exposure

One of the principal uses of bendiocarb is treatment of commercial food handling, processing, or storage areas, such as warehouses, dairies, bakeries, breweries and packaging establishments. EPA has limited data on dietary residues in processed foods from use in these establishments, but those data indicate that detectable residues of bendiocarb may be found in foods following treatment. A study measuring residues in six processing establishments found residues in food ranging from 0.005 to 0.086 ppm in the period up to 4 days after application.

Bendiocarb is also incorporated into shelf papers for use in homes. Current label statements limit use to non-food storage areas, such as linen cabinets, but EPA believes that this statement may not be widely observed, and is unenforceable. If restrictions on placement of shelf paper are not adhered to by residential users, there is potential dietary exposure from placing utensils and foodstuffs (both wrapped and unwrapped) on shelves lined with bendiocarb-impregnated paper.

In one study on residues in packaged foods and utensils in contact with shelf paper, residues were found to transfer from the shelf paper, with higher residues at longer intervals. The amount of such residues depended on the food commodity, with typical amounts in the range of 0.007 to 0.56 ppm. Moreover, residues were generally higher at the bottom of the containers, closer to the shelf paper. In this study, the residues did not decline over the eight week exposure period.

Additional data are required to support the establishment of tolerances from use in food handling establishments and from use of shelf paper.

13. Reported incidents of bendiocarb exposure

During the period 1976-1979, the Agency's Pesticide Incident Monitoring System (PIMS) reported 5 pesticide incidents involving bendiocarb alone. Four humans and one dog were involved. Two exhibited cholinesterase inhibition symptoms, while the other three involved irritation of the skin, eyes or mucosa. Four of the 5 incidents were indoor exposures.

During the period 1976-1985, the state of California reported 71 occupational incidents involving exposure to bendiocarb or its residues. Approximately one-third of these incidents involved skin/eye exposures, while two-thirds were reported as systemic poisonings. Fifty percent of the incidents from 1977-1981 and the majority of the incidents from 1982 through 1985 were indoor exposures.

C. ENVIRONMENTAL PROFILE

1. Avian and Terrestrial Species

Eleven avian studies on the technical product were reviewed to determine avian hazards. Technical bendiocarb has is very highly toxic to a waterfowl species (mallard duck LD_{50} = 3.1 mg/kg) and highly toxic to an upland game bird (bobwhite quail LD_{50} = 19 mg/kg).

Subacute dietary studies showed that bendiocarb is slightly toxic to bobwhite quail (1770 ppm in the diet) and highly toxic to mallard ducks (477 ppm in the diet). Avian reproduction studies indicated that reproductive impairment may occur when bendiocarb is used on turf.

The use of bendiocarb at maximum rates on turf may pose a risk to birds, mammals and aquatic invertebrates. The expected environmental concentration of bendiocarb on short grasses was calculated to be 960 ppm, about twice the 477 ppm in the diet that was shown to cause reproductive effects in mallard ducks. Small mammals feeding on treated turf would also be at risk.

Granular bendiocarb products used on turf may pose an acute hazard to birds. A study using a 10% formulated product found that 100% mortality of the test species (red-winged blackbirds) was obtained when the birds ingested only 10 granules. For a larger bird, such as a bobwhite quail, 26 granules was calculated to be the maximum amount that would result in no mortality. A typical application rate of 4 lbs/A of bendiocarb granular product could provide 1417 granules/ft^2.

Because these risks are based upon calculated values and not actual measured residues, field studies are required to assess the actual hazards to terrestrial and avian species.

Other outdoor uses of bendiocarb--mosquito adulticide and fire ant control--are anticipated to be of minimal hazard to terrestrial and avian species.

2. Aquatic Species

Bendiocarb is acutely toxic to freshwater invertebrates (Daphnia magna). The 48 hour LC_{50} for Daphnia magna was 29.2 ppb. Similarly, coldwater (rainbow trout) and warmwater (bluegill sunfish) fish species were very sensitive to technical bendiocarb, with toxicities ranging from 0.47 to 1.67 ppm for bluegills and 1.2 - 1.5 ppm for trout. Data are not available for marine or estuarine species. Because of the extensive golf course use of bendiocarb at high rates, and the fact that many golf courses border marine environments, such data are required.

Because of its high toxicity to fish and aquatic invertebrates bendiocarb use on turf may pose a hazard to aquatic species. Estimated environmental concentrations of bendiocarb due to runoff from turf use were modeled for a 10 hectare farm pond/stream site. Three rainfall scenarios (high, medium and low) were simulated. In a normal rainfall year, the concentration of bendiocarb from runoff was estimated to be 46% of the toxicity to fish and 739% of the toxicity to aquatic invertebrates. In a high rainfall year, these percentages were 62% for fish and 1000% for invertebrates.

Aquatic residue monitoring of ponds is required to assess actual levels of pesticide residues resulting from applications to surrounding turf.

3. Nontarget Insects

Acute contact test data indicate high toxicity to honey bees. A study on the toxicity of bendiocarb to honey bees from residues on foliage is required.

4. Endangered Species

Endangered species labeling is set forth in the standard for golf course and sod farm use of bendiocarb in San Bernardino county of California and the islands of Hawaii and Maui to protect the Mohave tui chub and Hawaiian goose. The use of bendiocarb-containing products as a mosquito adulticide is controlled in certain counties of AL, AR, CA, FL, NC, TN, and TX and Puerto Rico to protect certain endangered or threatened species. Bendiocarb may pose a hazard to endangered species due to its toxicity to avian and aquatic life.

5. Groundwater Contamination Potential

Only very limited data are available to evaluate the potential for bendiocarb to contaminate groundwater. A full battery of environmental fate data are required.

Based on the available data, bendiocarb at 200 ppm had a half-life of 9-14 days on sandy soils and 42-68 days on sandy loam soil. In a second study, bendiocarb at 5 ppm had a half life in a loam soil of <2 days.

Both bendiocarb and its principal metabolite, NC-7312, were mobile in columns of sandy soil, with 63-78% of the radioactivity detected in the leachate. In columns of heavier soils--clay loam, loam and silt loam--less than 12% of the radioactivity was detected in the leachate.

D. TOLERANCE ASSESSMENT

Bendiocarb is not currently used on agricultural commodities. Therefore, no residue tolerances have been established for food crops or animal commodities resulting from treatment of raw agricultural commodities. The Agency is reviewing requests for establishment of tolerances on raw agricultural commodities.

No numerical food or feed additive tolerances have been established for residues of bendiocarb in food/feed resulting from its use in food handling and animal feed handling establishments. However, the prescribed conditions for use of bendiocarb in these sites are set out in 21 CFR 193.152 and 21 CFR 561.191. Numerical tolerances are required.

Animal metabolism submitted in support of proposed tolerances are currently under review. Data submitted in support of those tolerances indicate that in virtually all species studied, bendiocarb is rapidly absorbed through the digestive tract, metabolized to its principal metabolite, NC-7312 (and other ring-hydroxylated forms), and rapidly excreted in urine, with little excretion through feces. In rats, metabolism to carbon dioxide has been shown.

Adequate gas-liquid chromatographic methods exist for both data collection and enforcement of bendiocarb residues in processed food products, such as breads, processed meats, and grain products. Analysis by multi-residue protocols is required.

Data concerning the storage stability of bendiocarb residues in processed foods/feeds from treatment of food handling establishments are not available and must be submitted together with residue data.

No Canadian or Mexican tolerances or Codex MRL (Maximum Residue Levels) related to uses of bendiocarb in food handling establishments have been established.

IV. REGULATORY POSITION AND RATIONALE

A. REGULATORY POSITIONS

Based on review and evaluation of all available data and other relevant information on bendiocarb, the Agency has made the following determinations:

1. Special review.

The Agency is not placing bendiocarb into Special Review at this time. The Agency has insufficient information to determine whether the criteria of 40 CFR 154.7 are exceeded for bendiocarb turf use. Aquatic residue monitoring studies are required to determine actual residue levels in the aquatic environment and to assess potential risks to aquatic organisms. Field studies are required to assess potential risks to avian species.

Rationale: Theoretical calculations and modeling indicate that bendiocarb use on turf could result in residue levels that would exceed risk criteria for mortality to non-target fish, birds, and aquatic invertebrates. The aquatic residue monitoring and terrestrial field studies that are required will allow the Agency to assess the potential risks from outdoor uses.

2. Restricted use.

Products containing bendiocarb for use on commercial turf are restricted to use by certified applicators or persons under their direct supervision, due to avian and aquatic organism toxicity.

Rationale: Pesticide products may be classified for restricted use if the product, without such restrictions, "may generally cause unreasonable adverse effects on the environment" which can reasonably be prevented by classification for restricted use. Bendiocarb is highly toxic to aquatic and avian species. Limiting use to certified applicators will ensure application by persons knowledgeable of the hazards to wildlife, thereby reducing the potential for adverse effects.

The criteria for restricted use for aquatic and terrestrial species are exceeded. The estimated environmental concentration (EEC) of 215 ppb exceeds 1/10th the LC_{50} for both fish and aquatic invertebrates. Similarly, estimated residues on avian and mammalian food items exceed 1/5th the LC_{50} for birds and mammals.

3. Aquatic and field monitoring. The Agency is requiring aquatic residue monitoring studies to measure actual residues

in ponds and streams due to runoff from turf application, and is requiring field studies on turf for terrestrial species.

Rationale: These studies are needed to assess the risks to these species to determine whether additional regulatory action is warranted.

4. Reentry interval.

The Agency is not establishing a reentry interval for bendiocarb use on ornamentals or turf at this time.

Rationale: Bendiocarb exhibits only moderate toxicity via the dermal route of exposure (formulated products are in Toxicity Categories II and III). Moreover, bendiocarb is not a significant skin or eye irritant, nor a skin sensitizer.

5. Tolerances.

Finite tolerances for residues of bendiocarb in or on food and feed treated in food/feed handling establishments are required. If residues of concern are nondetectable, then tolerances at the detection limit of the method must be proposed. Should the studies of the nature of the residue reveal the presence of degradation products of concern other than bendiocarb *per se*, analysis for such residues must also be included in residue tests. Data requirements to support processed food tolerances are given in Table A.

In addition, residue data supporting tolerances for bendiocarb-impregnated shelf paper are required.

Rationale: A major use of bendiocarb is as an insecticide in food and feed processing and handling establishments; thus there is a potential for contamination of food, feed and equipment used in these areas. Detectable amounts of bendiocarb *per se* were found in some food products sampled 0-4 days following spot treatment of some of the premises treated.

Tolerances for shelf paper residues are necessary because label use restrictions are not enforceable.

6. Immediate review of studies.

The Agency has identified certain data that will receive priority review when submitted to the Agency. The following studies have been identified to receive priority review as soon as they are received by the Agency:

158.125 Residue chemistry - Analytical methodology
Storage stability
Magnitude of the residue

158.135 Toxicology - Mutagenicity
Acute inhalation

158.145 Wildlife and Aquatic Organisms - Aquatic residue monitoring

Rationale: These data are essential to the Agency's assessment of this pesticide and its uses and/or may trigger the need for further studies which should be initiated as soon as possible.

7. Continuation of registration.

While data gaps are being filled, currently registered manufacturing use products (MPs) and end use products (EPs) containing bendiocarb as the sole active ingredient may be sold, distributed, formulated and used, subject to the terms and conditions specified in this Standard. Registrants must provide or agree to develop additional data, as specified in the Data Appendices, in order to maintain existing registrations.

Rationale: Under FIFRA, the Agency does not normally cancel or withhold registration simply because data are missing or are inadequate (see FIFRA sec. 3(c)(2)(B) and 3(c)(7). Issuance of this Standard provides a mechanism for identifying data needs. These data will be reviewed and evaluated, after which the Agency will determine if additional regulatory changes are necessary.

B. CRITERIA FOR REGISTRATION

To be registered or reregistered under this Standard, products must contain Bendiocarb as the sole active ingredient, bear required labeling, and conform to the product composition, acute toxicity limits, and use pattern requirements listed in this section.

C. ACCEPTABLE RANGES AND LIMITS

1. Product Composition Standard

To be registered or reregistered under this Standard, manufacturing-use products (MPs) must contain Bendiocarb as the sole active ingredient. Each MP formulation proposed for registration must be fully described with an appropriate certification of limits, stating maximum and minimum amounts of the active ingredient and inert ingredients which are present in products, as well as impurities found at greater than 0.1%.

2. Acute Toxicity Limits

The Agency will consider registration of technical grade and manufacturing-use products containing bendiocarb provided that the product labeling bears appropriate precautionary statements for the acute toxicity category in which each product is placed.

3. Use Patterns

To be registered under this Standard, manufacturing-use products may be labeled for formulation into end-use products only for the commodities listed in the EPA Index. The EPA Index to Pesticide Chemicals lists all registered uses, as well as approved maximum application rates and frequencies.

D. REQUIRED LABELING

All manufacturing-use products (and end-use products, if covered by Standard) must bear appropriate labeling as specified in 40 CFR 162.10. Appendix II contains information on label requirements.

No pesticide product containing bendiocarb may be released for shipment by the registrant after July 1, 1988, unless the product bears an amended label which complies with the requirements of this Standard.

No pesticide product containing bendiocarb may be distributed, sold, offered for sale, held for sale, shipped, delivered for shipment, or received and (having so received) delivered or offered to be delivered by any person after July 1, 1989 unless the product bears an amended label which complies with the requirements of this Standard.

In addition to the above, the following information must appear on the labeling:

1. Ingredients Statement

The ingredient statement for MPs must list the active ingredient as:

Bendiocarb (2,2-dimethyl-1,3-benzodioxol-4-yl methylcarbamate)

2. Use Pattern Statements

Manufacturing Use Products

a. All manufacturing-use products must state that they are intended for formulation into end-use products for acceptable use patterns. Labeling must specify sites, which are listed in Use Patterns, Section C.3. However, no use may be included on the label where the registrant fails to agree to comply with the data requirements in TABLE A for that use pattern.

b. The following environmental hazard statement must appear on all manufacturing use product labels:

"This pesticide is toxic to wildlife. Do not discharge effluent containing this product into lakes, streams, ponds, estuaries, oceans, or public waters unless this product is specifically identified and addressed in an NPDES permit. Do not discharge effluent containing this product to sewer systems without previously notifying the sewage treatment plant authority. For guidance contact your State Water Board or Regional Office of the EPA."

End use products.

a. All shelf paper products must bear the following restriction against use in areas where food may be exposed:

"Do not place wrapped or unwrapped food or utensils on impregnated paper."

b. The restriction limiting use to Pest Control Operators only must be revised to read as follows:

"Recommended for use only by Pest Control Operators."

4. Precautionary Statements

Golf Course and Sod Farm Uses

BENDIOCARB ENDANGERED SPECIES LABELING INFORMATION FOR GOLF COURSE AND SOD FARM USES IN SAN BERNARDINO COUNTY, CALIFORNIA AND THE ISLANDS OF HAWAII AND MAUI (IF APPLICABLE)

"ENDANGERED SPECIES RESTRICTIONS

"The use of any pesticide in a manner that may kill or otherwise harm an endangered or threatened species or adversely modify their habitat is a violation of federal laws. The use of this product on golf courses and sod farms in San Bernardino County, California and on the Islands of Hawaii and Maui is prohibited."

Mosquito Adulticide Use

"ENDANGERED SPECIES RESTRICTIONS

"Before using this product to control or eradicate mosquitoes in a county listed below, you must contact the Endangered Species Specialist in the Regional/Field Office of the

U.S. Fish and Wildlife (FWS) indicated below. You must provide FWS with your name and phone number, the product you intend to use, and the specific location in which you intend to use it. The U.S. Fish and Wildlife Service will inform you whether your proposed use is in the range of endangered species. Use of this product in the range of endangered species, as described by FWS, is prohibited."

"Contact FWS Field Offices at the following numbers:

ALABAMA (Jackson, Mississippi, 601-965-4900)
Jackson

ARKANSAS (Jackson, Mississippi, 601-965-4900)
Cross and St. Francis

CALIFORNIA (Sacramento, California, 916-460-4866)
Los Angeles, Orange, San Diego, San Luis Obispo, Santa Barbara and Ventura

FLORIDA (Jacksonville, Florida, 904-791-2580)
Broward, Dade, Glades and Palm Beach

NORTH CAROLINA (Asheville, North Carolina, 704-259-0321)
Edgecombe

PUERTO RICO (Mayaguez, Puerto Rico, 809-851-7297)
Island of Puerto Rico

TENNESSEE (Asheville, North Carolina, 704-259-0321)
Franklin

TEXAS (Houston, Texas, 817-334-2961)
Bastrop, Burleson and Harris "

Mosquito Adulticide Products

ENVIRONMENTAL HAZARDS

This pesticide is toxic to fish and wildlife. Do not apply within 320 feet of any permanent body of water. Do not apply directly to water or wetlands (swamps, bogs, marshes, and potholes). Drift and runoff from treated areas may be hazardous to aquatic organisms in neighboring areas. Do not contaminate water by cleaning of equipment or disposal of waste.

This product is highly toxic to bees exposed to direct treatment on blooming crops or weeds. Do not apply this product or allow it to drift to blooming crops or weeds if bees are visiting the treatment area.

All Other Outdoor Uses - Granular Products

ENVIRONMENTAL HAZARDS

This pesticide is toxic to fish and wildlife. Do not apply directly to water or wetlands (swamps, bogs, marshes, and potholes). Runoff from treated areas may be hazardous to aquatic organisms in neighboring areas. Do not contaminate water by cleaning of equipment or disposal of waste. Collect, cover or incorporate granules spilled on soil surface.

All Other Outdoor Uses - Nongranular Products

ENVIRONMENTAL HAZARDS

This pesticide is toxic to fish and wildlife. Do not apply directly to water or wetlands (swamps, bogs, marshes, and potholes). Drift and runoff from treated areas may be hazardous to aquatic organisms in neighboring areas. Do not contaminate water by cleaning of equipment or disposal of waste.

This product is highly toxic to bees exposed to direct treatment on blooming crops or weeds. Do not apply this product or allow it to drift to blooming crops or weeds if bees are visiting the treatment area."

Commercial Turf Use Products

The following label text is required for all products bearing directions for use on commercial turf:

RESTRICTED USE PESTICIDE

Due to Aquatic and Avian Toxicity

For retail sale to and use by certified applicators or persons under their direct supervision and only for those uses covered by the certified applicator's certification.

End Use Products in Toxicity Category I and II

"HAZARDS TO HUMANS AND DOMESTIC ANIMALS

DANGER or WARNING*

Harmful or fatal if swallowed. May be absorbed through the skin. Avoid contact with the eyes, skin, and clothing. If contact occurs, wash skin and clothing immediately with soap and warm water, and eyes with clean water.

Do not rub eyes or mouth with hands. If you feel sick in any way, STOP WORK and get help right away. See First Aid (Practical Treatment) section.

Avoid breathing and working in spray mist or dust.

When applying in outdoor sites keep all unprotected persons, children, and animals away from treated area or where there is danger of drift.

When applying to indoor sites--DO NOT APPLY TO OCCUPIED AREAS. Apply only when people and pets are not present. Treated areas must be adequately ventilated after treatment. Do not allow people or pets to return to treated areas until vapors have dispersed and spray has dried completely.

Do not use on or contaminate fruit, vegetables or other food or feed crops. Do not store near food or feed products.

*Use signal word appropriate to Toxicity Category

V. PRODUCTS SUBJECT TO THIS STANDARD

All products, containing the pesticide identified in Section II.A., are subject to certain requirements for data submission or changes in composition, labeling or packaging of the product. The applicable requirements depend on whether the product is a manufacturing or end use product and whether the pesticide is the sole active ingredient or one of multiple active ingredients.

Products are subject to this Registration Standard as follows:

A. Manufacturing use products containing this pesticide as the sole active ingredient are subject to:

1. The restrictions (if any) upon use, composition, or packaging listed in Section IV, if they pertain to the manufacturing use product.

2. The data requirements listed in Tables A and B[2]

3. The labeling requirements specified for manufacturing use products in Section IV.

4. Administrative requirements (application forms, Confidential Statement of Formula, data compensation provisions) associated with reregistration.

B. Manufacturing use products containing this pesticide as one of multiple active ingredients are subject to:

The data requirements listed in Table A.

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[2] Data requirements are listed in the three Tables in Appendix I of this Registration Standard. The Guide to Tables in that Appendix explains how to read the Tables.

Table A lists generic data requirements applicable to all products containing the pesticide subject to this Registration Standard. Table B lists product-specific data applicable to manufacturing use products. The data in Tables A and B need not be submitted by a producer who is eligible for the formulator's exemption for that active ingredient.

Table C lists product-specific data applicable to end use products. The Agency has decided that, in most cases, it will not require the submission of product-specific data for end use products at this time. Therefore most Registration Standards do not contain a Table C.

C. End use products containing this pesticide as the sole active ingredient are subject to:

1. The restrictions (if any) upon use, composition, or packaging listed in Section IV if they pertain to the end use product.

2. If eligible for the formulator's exemption[3], the data requirements listed in Table C.

3. If not eligible for the formulator's exemption, the data requirements listed in Table A and the data requirements listed in Table C.

4. The labeling requirements specified for end use products in Section IV.

D. End use products containing this pesticide as one of multiple active ingredients are subject to:

1. If not eligible for the formulator's exemption, the data requirements listed in Tables A and C.

2. If eligible for the formulator's exemption, the data requirements listed in Table C.

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[3] If you purchase from another producer and use as the source of your active ingredient only EPA-registered products, you are eligible for the formulator's exemption for generic data concerning that active ingredient (Table A) and product-specific data for the registered manufacturing use product you purchase (Table B).

Two circumstances nullify this exemption:

1) If you change sources of active ingredient to an unregistered product, formulate your own active ingredient, or acquire your active ingredient from a firm with ownership in common with yours, you individually lose the exemption and become subject to the data requirements in Table A.

2) If no producer subject to the generic data requirements in Table A agrees to submit the required data, all end use producers lose the exemption, and become subject to those data requirements.

VI. REQUIREMENT FOR SUBMISSION OF GENERIC DATA

This portion of the Registration Standard is a notice issued under the authority of FIFRA sec. 3(c)(2)(B). It refers to the data listed in Table A, which are required to be submitted by registrants to maintain in effect the registration of products containing this active ingredient.[4]

A. What are generic data?

Generic data pertain to the properties or effects of a particular active ingredient. Such data are relevant to an evaluation of all products containing that active ingredient regardless of whether the product contains other ingredients. (unless the product bears labeling that would make the data requirement inapplicable).

Generic data may also be data on a "typical formulation" of a product. "Typical formulation" testing is often required for ecological effects studies and applies to all products having that formulation type. These are classed as generic data, and are contained in Table A.

B. Who must submit generic data?

All current registrants are responsible for submitting generic data in response to a data request under FIFRA sec. 3(c)(2)(B) (DCI Notice). EPA has decided, however, not to require a registrant who qualifies for the formulator's exemption (FIFRA sec. 3(c)(2)(D) and § 152.85) to submit generic data in response to a DCI notice if the registrant who supplies the active ingredient in his product is complying with the data request.

If you are not now eligible for a formulator's exemption, you may qualify for one if you change your source of supply to a registered source that does not share ownership in common with your firm. If you choose to change sources of supply, the Confidential Statement of Formula must identify the new source(s) and you must submit a Formulator's Exemption Statement form.

If you apply for a new registration for products containing this active ingredient after the issuance of this Registration Standard, you will be required to submit or cite generic data relevant to the uses of your product if, at the time the application is submitted, the data have been submitted to the Agency by current registrants. If the required data have not yet been submitted, any new registration will be conditioned upon the new registrant's submission or citation of the required data not later than the date upon which current registrants of similar products are required to provide such data. See FIFRA sec. 3(c)(7)(A). If you thereafter fail to comply with the condition of that registration to provide data, the registration may be cancelled (FIFRA sec. 6(e)).

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[4] Registrations granted after issuance of this Standard will be conditioned upon submission or citation of the data listed in this Registration Standard.

C. What generic data must be submitted?

You may determine which generic data you must submit by consulting Table A. That table lists the generic data needed to evaluate current uses of all products containing this active ingredient, the uses for which such data are required, and the dates by which the data must be submitted to the Agency.

D. How to comply with DCI requirements.

Within 90 days of your receipt of this Registration Standard, you must submit to EPA a completed copy of the form entitled "FIFRA Section 3(c)(2)(B) Summary Sheet" (EPA Form 8580-1, enclosed) for each of your products. On that form you must state which of the following six methods you will use to comply with the DCI requirements:

1. You will submit the data yourself.

2. You have entered into an agreement with one or more registrants to jointly develop (or share in the cost of developing) the data, but will not be submitting the data yourself. If you use this method, you must state who will submit the data on which you will rely. You must also provide EPA with documentary evidence that an agreement has been formed which allows you to rely upon the data to be submitted. Such evidence may be: (1) your letter offering to join in an agreement and the other registrant's acceptance of your offer, (2) a written statement by the parties that an agreement exists, or (3) a written statement by the person who will be submitting the data that you may rely upon its submission. The Agency will also require adequate assurance that the person whom you state will provide the data is taking appropriate steps to secure it. The agreement to produce the data need not specify all of the terms of the final arrangement between the parties or a mechanism to resolve the terms.

If you and other registrants together are generating or submitting requested data as a task force or consortium, a representative of the group should request a Joint Data Submitter Number from the Registration Support and Emergency Response Branch, Registration Division. The request must include the following information:

a. A list of the members of the consortium;
b. The name and address of the designated representative of the consortium, with whom EPA will correspond concerning the data;
c. Identity of the Registration Standard containing the data requirement;
d. A list of the products affected (from all members of the consortium); and
e. Identification of the specific data that the consortium will be generating or submitting.

The Agency will assign a number to the consortium, which should be used on all data submissions by the consortium.

3. You have attempted to enter into an agreement to jointly develop data, but no other registrant has accepted your offer. You request that EPA not suspend your registration for non-compliance with the DCI. EPA has determined that, as a general policy, it will not suspend the registration of a product when the registrant has in good faith sought and continues to seek to enter into a data development/cost sharing program, but the other registrants developing the data have refused to accept its offer. [If your offer is accepted, you may qualify for Option 2 above by entering into an agreement to supply the data.]

In order to qualify for this method, you must:

1. File with EPA a completed "Certification of Attempt to Enter into an Agreement with other Registrants for Development of Data" (EPA Form 8580-6, enclosed).

2. Provide us with a copy of your offer to the other registrant and proof of the other registrant's receipt of your offer (such as a certified mail receipt). Your offer must, at a minimum, contain the following language or its equivalent:

> [Your company name] offers to share in the burden of producing the data required pursuant to FIFRA sec. 3(c)(2)(B) in the [name of active ingredient] Registration Standard upon terms to be agreed or failing agreement to be bound by binding arbitration as provided by FIFRA section 3(c)(2)(B)(iii).

The remainder of your offer may not in any way attempt to limit this commitment. If the other registrant to whom your offer is made does not accept your offer, and if the other registrant informs us on a DCI Summary Sheet that he will develop and submit the data required under the DCI, then you may qualify for this option. In order for you to avoid suspension under this method, you may not later withdraw or limit your offer to share in the burden of developing the data. In addition, the other registrant must fulfill its commitment to develop and submit the data.

4. You request a waiver of the data requirement. If you believe that a data requirement does not (or should not) apply to your product or its uses, you must provide EPA with a statement of the reasons why you believe this is so. Your statement must address the specific composition or use factors that lead you to believe that a requirement does not apply. Since the Agency has carefully considered the composition and uses of pesticide products in determining that a data requirement applies, EPA does not anticipate that many waivers will be granted. A request for waiver does not extend the timeframes for developing required data, and if your waiver request is denied, your registration may be suspended if you fail to submit the data.

5. You request that EPA amend your registration by deleting the uses for which the data are needed. You are not required to submit data for uses which are no longer on your label.

6. You request voluntary cancellation of the registration of your product(s) for which the data are needed.

E. Procedures for requesting a change in testing protocol.

If you will generate the required data and plan to use test procedures which deviate from (or are not specified in) either EPA's Pesticide Assessment Guidelines or the Reports of Expert Groups to the Chemicals Group, Organization for Economic Cooperation and Development (OECD) Chemicals Testing Programme, you must submit for EPA approval the protocols you propose to use.

You should submit your protocols before beginning testing and await EPA approval, because the Agency will not ordinarily accept as sufficient studies using unapproved protocols. A request for protocol approval will not extend the timeframe for submission of the data, nor will extensions generally be given to conduct studies due to submittal of inappropriate protocols.

F. Procedures for requesting extensions of time.

If you think that you will need more time to generate the data than is allowed by EPA's schedule, you may submit a request for an extension of time. Any request for a time extension which is made as an initial response to a section 3(c)(2)(B) request notice must be submitted in writing to the Product Manager listed at the end of this section and must be made before the deadline for response. Once dates have been committed to and EPA has accepted these commitments, any subsequent requests for a time extension must be submitted in writing to the Office of Compliance Monitoring at the address given in Section IX.E.

EPA will view failure to request an extension before the response deadline as a waiver of any future claim that there was insufficient time to submit the data. While EPA considers your request, you must strive to meet the deadline for submitting the data.

The extension request should state the reasons why you believe that an extension is necessary and the steps you have taken to meet the testing deadline. Time extensions normally will not be granted due to problems with laboratory capacity or adequacy of funding, since the Agency believes that with proper planning these can be overcome. Time extensions may be considered when joint data development is planned, or when the Agency must approve a new or modified protocol before the study can be begun.

A request for an extension does not extend the timeframe for submission of the data. If EPA denies your request for a time extension and you do not submit the data as requested, EPA may begin proceedings to suspend the registrations of your products.

G. Existing stocks provision upon suspension or cancellation.

The Agency has determined that if a registration is suspended for failure to respond to a DCI request under FIFRA sec. 3(c)(2)(B), an existing stocks provision is not consistent with the Act. Accordingly, the Agency does not anticipate granting permission to sell or distribute existing stocks of suspended product except in rare circumstances. If you believe that your product will be suspended or cancelled and that an existing stocks provision should be granted, you have the burden of clearly demonstrating to EPA that granting such permission would be consistent with the Act. The following information must be included in any request for an existing stocks provision:

1. Explanation of why an existing stocks provision is necessary, including a statement of the quantity of existing stocks and your estimate of the time required for their sale or distribution; and

2. Demonstration that such a provision would be consistent with the provisions of FIFRA.

VII. REQUIREMENT FOR SUBMISSION OF PRODUCT-SPECIFIC DATA

Under its DCI authority, EPA has determined that certain product-specific data are required to maintain your registrations in effect. Product-specific data are derived from testing using a specific formulated product, and, unlike generic data, generally support only the registration of that product. All such data must be submitted by the dates specified in this Registration Standard.

If you have a manufacturing use product, these data are listed in Table B. If you have an end use product, the data are listed in Table C. As noted earlier, the Agency has decided that it will not routinely require product-specific data for end use products at this time. Therefore, Table C may not be contained in this Registration Standard; if there is no Table C, you are not required to submit the data at this time.

In order to comply with the product specific data requirements, you must follow the same procedures as for generic data. See Section IV.D, E, F, and G. You should note, however, that product chemistry data are required for every product, and the only acceptable responses are options IV.D.1. (submit data) or IV.D.6.(cancellation of registration).

Failure to comply with the product-specific data requirements for your products will result in suspension of the product's registration.

VIII. REQUIREMENT FOR SUBMISSION OF REVISED LABELING

FIFRA requires each product to be labeled with accurate, complete and sufficient instructions and precautions, reflecting the Agency's assessment of the data supporting the product and its uses. General labeling requirements are set out in 40 CFR 162.10 (see Appendix II - LABELING and SUMMARY). In addition, labeling requirements specific to products containing bendiocarb are specified in Section IV.D of this Registration Standard. Applications submitted in response to this notice must include draft labeling for Agency review.

If you fail to submit revised labeling as required, which complies with 40 CFR 162.10 and the specific instructions in Section IV.D., EPA may seek to cancel or suspend the registration of your product under FIFRA sec. 6.

IX. INSTRUCTIONS FOR SUBMISSION

A. Manufacturing Use Products (MUPs) containing Bendiocarb as sole active ingredient.

1. Within 90 days from receipt of this document, you must submit to the Product Manager in the Registration Division for each product subject to this Registration Standard:

   a. The "FIFRA Section 3(c)(2)(B) Summary Sheet" (EPA Form 8580-1), with appropriate attachments.[5]

   b. Confidential Statement of Formula (EPA Form 8570-4).

   c. Generic Data Exemption Statement (EPA Form 8570-27), if applicable.

   d. Evidence of compliance with data compensation requirements of FIFRA sec. 3(c)(1)(D). Refer to 40 CFR 152.80-152.99.

2. Within 9 months from receipt of this document you must submit to the Product Manager:

   a. Application for Pesticide Registration (EPA Form 8570-1).

   b. Two copies of any required product-specific data (See Table B).

   c. Three copies of draft labeling, including the container label and any associated supplemental labeling. Labeling should be either typewritten text on 8-1/2 x 11 inch paper or a mockup of the labeling suitable for storage in 8-1/2 x 11 files. The draft label must indicate the intended colors of the final label, clear indication of the front panel of the label, and the intended type sizes of the text.

   d. Product Specific Data Report (EPA Form 8580-4).

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[5] If on the Summary Sheet, you commit to develop the data, present arguments that a data requirement is not applicable or should be waived, or submit protocols or modified protocols for Agency review, you must submit a copy of the Summary Sheet (and any supporting information) to the Office of Compliance Monitoring, which will be monitoring the data generated in response to this notice. This submission is in addition to responding to the Product Manager, and should be submitted to the Office of Compliance Monitoring at the address given at the end of this section. (Actual studies are not to be submitted to the Office of Compliance Monitoring.)

3. Within the times set forth in Table A, you must submit to the Registration Division all generic data, unless you are eligible for the formulator's exemption. If for any reason any test is delayed or aborted so that the schedule cannot be met, immediately notify the Product Manager and the Office of Compliance Monitoring of the problem, the reasons for the problem, and your proposed course of action.

B. Manufacturing Use Products containing Bendiocarb in combination with other active ingredients.

1. Within 90 days from receipt of this document, you must submit to the Product Manager in the Registration Division:

   a. FIFRA sec. 3(c)(2)(B) Summary Sheet, with appropriate attachments[5] (EPA Form 8580-1).

   b. Confidential Statement of Formula (EPA Form 8570-4)

   c. Generic Data Exemption Statement (EPA Form 8570-27), if applicable.

2. Within the time frames set forth in Table A, you must submit to the Registration Division all generic data, unless you are eligible for the formulator's exemption. If for any reason any test is delayed or aborted so that the schedule cannot be met, immediately notify the Product Manager and the Office of Compliance Monitoring of the problem, the reasons for the problem, and your proposed course of action.

C. End Use Products containing Bendiocarb as sole active ingredient.

1. Within 90 days from receipt of this document, you must submit to the Product Manager in the Registration Division:

   a. FIFRA Section 3(c)(2)(B) Summary Sheet, with appropriate attachments[5] (EPA Form 8580-1).

   b. Confidential Statement of Formula (EPA Form 8570-4).

   c. Generic Data Exemption Statement (EPA Form 8570-27), if applicable.

2. Within 9 months from receipt of this document you must submit to the Product Manager:

   a. Two copies of any product-specific data, if required by Table C.

   b. Product Specific Data Report (EPA Form 8580-4), if Table C lists required product-specific data.

c. Three copies of draft labeling, including the container label and any associated supplemental labeling. Labeling should be either typewritten text on 8-1/2 x 11 inch paper or a mockup of the labeling suitable for storage in 8-1/2 x 11 files. The draft labeling must indicate the intended colors of the final label, clear indication of the front panel of the label, and the intended type sizes of the text. End use product labeling must comply specifically with the instructions in Section IV (Regulatory Position and Rationale).

D. Intrastate Products containing Bendiocarb either as sole active ingredient or in combination with other active ingredients.

These products are being called in for full Federal registration. Producers of these products are being sent a letter instructing them how to submit an application for registration.

E. Addresses

The required information must be submitted to the following address:

Dennis Edwards, PM-12
Registration Division (TS-767C)
Office of Pesticide Programs
Environmental Protection Agency
401 M St., SW
Washington, D.C. 20460

The address for submissions to the Office of Compliance Monitoring is:

Laboratory Data Integrity Program
Office of Compliance Monitoring (EN-342)
Environmental Protection Agency
401 M St., SW
Washington, D.C. 20460.

APPENDIX I - DATA TABLES

GUIDE TO TABLES

Tables A, B, and C contain listings of data requirements for the pesticides covered by this Registration Standard.

Table A contains generic data requirements that apply to the pesticide in all products, including data requirements for which a "typical formulation" is the test substance.

Table B contains product-specific data requirements that apply only to a manufacturing use product.

Table C contains product-specific data requirements that apply only to an end use product.

The data tables are generally organized according to the following format:

1. Data Requirement (Column 1). The data requirements are listed in the order in which they appear in 40 CFR Part 158. The reference numbers accompanying each test refer to the test protocols set out in the Pesticide Assessment Guidelines, which are available from the National Technical Information Service, 5285 Port Royal Road, Springfield, VA 22161.

2. Test Substance (Column 2). This column lists the composition of the test substance required to be used for the test, as follows:

TGAI = Technical grade of the active ingredient
PAI = Pure active ingredient
PAIRA = Pure active ingredient, radio labeled
TEP = Typical end use formulation
MP = Manufacturing use product
EP = End use product

Any other test substances, such as metabolites, will be specifically named in Column 2 or in footnotes to the table.

3. Use pattern (Column 3). This column indicates the use patterns to which the data requirement applies. Use patterns are the same as those given in 40 CFR Part 158. The following letter designations are used for the given use patterns:

A = Terrestrial, food
B = Terrestrial, non-food
C = Aquatic, food
D = Aquatic, non-food
E = Greenhouse, food
F = Greenhouse, non-food
G = Forestry
H = Domestic outdoor
I = Indoor

Any other designations will be defined in a footnote to the table.

4. Does EPA have data? (Column 4). This column indicates one of three answers:

YES - EPA has data in its files that satisfy this data requirement. These data may be cited by other registrants in accordance with data compensation requirements of Part 152, Subpart E.

PARTIALLY - EPA has some data in its files, but such data do not fully satisfy the data requirement. In some cases, the Agency may possess data on one of two required species, or may possess data on one test substance but not all. The term may also indicate that the data available to EPA are incomplete. In this case, when the data are clarified, or additional details of the testing submitted by the original data submitter, the data may be determined to be acceptable. If this is the case, a footnote to the table will usually say so.

NO - EPA either possesses no data which are sufficient to fulfill the data requirement, or the data which EPA does possess are flawed scientifically in a manner that cannot be remedied by clarification or additional information.

5. Bibliographic citation (Column 5). If the Agency has acceptable data in its files, this column lists the identifying number of each study. This normally is the Master Record Identification (MRID) number, but may be a GS number if no MRID number has been assigned. Refer to the Bibliography Appendices for a complete citation of the study.

6. Must additional data be submitted? (Column 6). This column indicates whether the data must be submitted to the Agency. If column 3 indicates that the Agency already has data, this column will usually indicate NO. If column 3 indicates that the Agency has only partial data or no data, this column will usually indicate YES. In some cases, even though the Agency does not have the data, EPA will not require its submission because of the unique characteristics of the chemical; because data on another chemical can be used to fulfill the data requirement; or because the data requirement has been waived or reserved. Any such unusual situations will be explained in a footnote to the table.

7. Timeframe for submission (Column 7). If column 5 requires that data be submitted, this column indicates when the data are to be submitted, based on the issuance date of the Registration Standard. The timeframes are those established either as a result of a previous Data Call-In letter, or standardized timeframes established by PR Notice 85-5 (August 22, 1985).

8. Footnotes (at the end of each table). Self-explanatory.

TABLE A
GENERIC DATA REQUIREMENTS FOR BENDIOCARB

Data Requirement	Test Substance	Use Patterns	Does EPA Have Data?[1]	Bibliographic Citation[1]	Must Additional Data be Submitted?	Time Frame for Submission
§158.120 Product Chemistry						
Product Identity						
61-1 - Product Identity and Disclosure of Ingredients	TGAI	All		N/A	Yes	6 Months
61-2 - Description of Beginning Materials and Manufacturing Process	TGAI	All		N/A	Yes	6 Months
61-3 - Discussion of Formation of Impurities	TGAI	All		N/A	Yes	6 Months
Analysis and Certification of Product Ingredients						
62-1 - Preliminary Analysis	TGAI	All		N/A	Yes[2/]	12 Months
Physical and Chemical Characteristics						
63-2 - Color	TGAI	All		N/A	Yes	6 Months
63-3 - Physical State	TGAI	All		N/A	Yes	6 Months
63-4 - Odor	TGAI	All		N/A	Yes	6 Months
63-5 - Melting Point	TGAI	All		N/A	Yes	6 Months
63-6 - Boiling Point	TGAI	All		N/A	Yes	6 Months

TABLE A
GENERIC DATA REQUIREMENTS FOR BENDIOCARB

Data Requirement	Test Substance	Use Patterns	Does EPA Have Data?[1]	Bibliographic Citation[1]	Must Additional Data be Submitted?	Time Frame for Submission
§158.120 Product Chemistry (Continued)						
Physical and Chemical Characteristics (Continued)						
63-7 - Density, Bulk Density, or Specific Gravity	TGAI	All		N/A		6 Months
63-8 - Solubility	TGAI or PAI	All		N/A		6 Months
63-9 - Vapor Pressure	PAI	All		N/A		6 Months
63-10 - Dissociation constant	PAI	All		N/A		6 Months
63-11 - Octanol/water partition coefficient	PAI	All		N/A		6 Months
63-12 - pH	TGAI	All		N/A		6 Months
63-13 - Storage Stability	TGAI	All		N/A		15 Months
Other Requirements:						
64-1 - Submittal of samples	TGAI, PAI	All		N/A		6 Months

1/ Not applicable. Although product chemistry data may been submitted in the past, the Agency has determined that these data must be resubmitted for each pesticide. New requirements have been introduced and previously submitted data must be updated. Therefore bibliographic citations for the old data are not applicable.

TABLE A
GENERIC DATA REQUIREMENTS FOR BENDIOCARB

§158.120 Product Chemistry - Continued

2/ Five batches of the technical grade of bendiocarb must be analyzed for the following halogenated dioxins and furans, using validated methodology capable of determining these impurities. It must be clearly documented that the target Levels of Quantitation (LOQ) indicated below were achieved or sought.

Chlorinated Dioxins	Brominated Dioxins	LOQ
2,3,7,8-TCDD	2,3,7,8-TBDD	0.1 ppb
1,2,3,7,8-PeCDD	1,2,3,7,8-PeBDD	0.5 ppb
1,2,3,4,7,8-HxCDD	1,2,3,4,7,8-HxBDD	2.5 ppb
1,2,3,6,7,8-HxCDD	1,2,3,6,7,8-HxBDD	2.5 ppb
1,2,3,7,8,9-HxCDD	1,2,3,7,8,9-HxBDD	2.5 ppb
1,2,3,4,6,7,8-HpCDD	1,2,3,4,6,7,8-HpBDD	100 ppb

Chlorinated Furans	Brominated Furans	LOQ
2,3,7,8-TCDF	2,3,7,8-TBDF	1 ppb
1,2,3,7,8-PeCDF	1,2,3,7,8-PeBDF	5 ppb
2,3,4,7,8-PeCDF	2,3,4,7,8-PeBDF	5 ppb
1,2,3,4,7,8-HxCDF	1,2,3,4,7,8-HxBDF	25 ppb
1,2,3,6,7,8-HxCDF	1,2,3,6,7,8-HxBDF	25 ppb
1,2,3,7,8,9-HxCDF	1,2,3,7,8,9-HxBDF	25 ppb
2,3,4,6,7,8-HxCDF	2,3,4,6,7,8-HxBDF	25 ppb
1,2,3,4,6,7,8-HpCDF	1,2,3,4,6,7,8-HpBDF	1 ppm
1,2,3,4,7,8,9-HpCDF	1,2,3,4,7,8,9-HpBDF	1 ppm

TABLE A
GENERIC DATA REQUIREMENTS FOR BENDIOCARB

Data Requirement	Test Substance	Does EPA Have Data?	Bibliographic Citation	Must Additional Data Be Submitted?	Time Frame for Submission
158.125 Residue Chemistry					
171-2 Chemical identity[1]		(See Index)			
171-3 Directions for use					
171-4 Nature of the residue (Metabolism)				Yes[5/]	12 months
- representative food products	PAIRA	No			
171-4 Residue analytical method				Yes[2/]	18 months
-prepared foods	TGAI & Metabolites	Yes	00046488 00076610 00076612 00118497 00121626 00122478 00150992 Giuffrida (1975) Reary (1974b)		
171-4 Storage stability data	TEP & Metabolites	No		Yes[3/4/6/]	24 months
171-4 Magnitude of the Residue - Food handling	PAIRA & TEP	Partially	Reary (1974a) Reary (1974b)	Yes[6/]	Protocol: 3 months Study: 24 months

TABLE A
GENERIC DATA REQUIREMENTS FOR BENDIOCARB

158.125 Residue Chemistry - Continued

1/ Refer to Product Chemistry Data Requirement tables.

2/ Residues of bendiocarb in or on food samples must be subjected to analysis by multiresidue protocols. Protocols for methods I, II, III, and IV are available from National Technical Information Service under Order No. PB 203734/AS.

3/ Storage intervals and conditions must be reported for the food product samples used to generate the residue data already submitted in support of food handling estabishment uses. Data must also be provided which depict the decline in residues during the corresponding storage intervals and under the conditions reported. On receipt of this information, the adequacy of data for tolerances purposes will be reevaluated.

4/ All residue data requested in this Standard must be accompanied by information specifying the storage intervals and conditions for samples analyzed. Data must also be submitted depicting the storage stability of the residues of concern under the same conditions and time intervals specified.

5/ Data depicting the nature of the residue in representative food products from typical food handling establishments resulting from known contamination by [^{14}C]bendiocarb (labeled in the benzene ring). Tests conducted must represent the range of normal heating and processing procedures following fortification with the [^{14}C]bendiocarb at typical stages where contamination resulting from treatment of the establishment premises might occur. Characterization of residues must be conducted in samples representing the range of normal shelf life for the food products. Alternatively, adequate characterization of residues in plant metabolism studies may be conducted.

6/ Data depicting the magnitude of residues of concern in food products resulting from the application of normal and exaggerated rates of the D and WP formulations of bendiocarb to food handling establishment premises. Tests conducted must be representative examples of worst case scenarios for potential residue contamination of food products which should include, but not be limited to, the following: (i) particulate aerosol contact with packaged products or unwrapped fresh produce present and/or on display at the time of bendiocarb treatment; (ii) transfer of residues to food products from treated shelves through shelf paper and/or food packaging material; (iii) contact of packaged foods with treated surfaces, such as flour sacks stacked on treated floor surfaces in storage areas; (iv) accidental treatment of food work surfaces and subsequent contact of food before surfaces are cleaned; (v) treatment occurring near stacks of new or cleaned product containers that are then filled without being cleaned; or (vi) tracking of residues by insects or rodents from treated areas to food or food contact surfaces. Protocol must be submitted within 3 months, but studies should not be initiated until the Agency has received and reviewed information on the metabolites in processed food/feed.

TABLE A
GENERIC DATA REQUIREMENTS FOR BENDIOCARB

Data Requirement	Test Substance	Use Patterns	Does EPA Have Data?	Bibliographic Citation	Must Additional Data be Submitted?	Time Frame for Submission
§158.130 Environmental Fate						
DEGRADATION STUDIES-LAB:						
161-1 - Hydrolysis	TGAI or PAIRA	B,D,F,H	No		Yes	9 Months
Photodegradation						
161-2 - In water	TGAI or PAIRA	B,D	No		Yes	9 Months
161-3 - On soil	TGAI or PAIRA	-	N/A		No	
161-4 - In air	TGAI or PAIRA	-	N/A		No	
METABOLISM STUDIES-LAB:						
162-1 - Aerobic Soil	TGAI or PAIRA	B,F,H	No		Yes	27 Months
162-2 - Anaerobic Soil	TGAI or PAIRA	-	N/A		No	
162-3 - Anaerobic Aquatic	TGAI or PAIRA	D	No		Yes	27 Months
162-4 - Aerobic Aquatic	TGAI or PAIRA	D	No		Yes	27 Months
MOBILITY STUDIES:						
163-1 - Leaching and Adsorption/Desorption	TGAI or PAIRA	B,D,F,H	No		Yes	12 Months
163-2 - Volatility (Lab)	TEP	F	No		Yes	12 Months
163-3 - Volatility (Field)	TEP	F	No		Reserved1/	

TABLE A
GENERIC DATA REQUIREMENTS FOR BENDIOCARB

Data Requirement	Test Substance	Use Patterns	Does EPA Have Data?	Bibliographic Citation	Must Additional Data be Submitted?	Time Frame for Submission
§158.130 Environmental Fate - Continued						
DISSIPATION STUDIES-FIELD:						
164-1 - Soil	TEP	B,H	No		Yes	27 Months
164-2 - Aquatic (Sediment)	TEP	D	No		Yes	27 Months
164-3 - Forestry	-	-	N/A		No2/	-
164-5 - Soil, Long-term	B,H	-	No		Reserved3/	50 Months
ACCUMULATION STUDIES:						
165-1 - Rotational crops (confined)	-	-	N/A		No	
165-2 - Rotational crops (field)	-	-	N/A		No	
165-3 - Irrigated Crops	N/A	-	-		No4/	-
165-4 - In Fish	TGAI or PAIRA	B,D	No		Yes5/	12 Months
165-5 - In Aquatic Non-Target Organisms	TEP	D	No		Yes5/	12 Months

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1/ Requirement depends on results of laboratory study.
2/ Not required because bendiocarb has no forestry use.
3/ This data requirement is deferred pending the receipt of soil dissipation data.
4/ No data are required because it is unlikely that water from sewers treated with bendiocarb would be used for crop irrigation.
5/ Required if significant concentrations of bendiocarb and/or its principle degradates are likely to occur in aquatic environments and may accumulate in aquatic organisms.

TABLE A
GENERIC DATA REQUIREMENTS FOR BENDIOCARB

Data Requirement	Test Substance	Use Pattern	Does EPA Have Data?	Bibliographic Citation	Must Additional Data be Submitted?	Time Frame for Submission
§158.140 Reentry Protection						
132-1 - Foliar Dissipation	TEP	B,D	Partial		Yes[1]	27 Months
132-1 - Soil Dissipation	TEP	N/A	No		No	
133-3 - Dermal Exposure	TEP	N/A	No		No	
133-4 - Inhalation Exposure	TEP	N/A	No		No	

1/ Data required because bendiocarb has an acute dermal toxicity of 566 mg/kg, and is used on ornamentals and turf. Before initiating this study, a protocol should be submitted, or registrants should consult with the Agency.

TABLE A
GENERIC DATA REQUIREMENTS FOR BENDIOCARB

Data Requirement	Test Substance	Use Pattern	Does EPA Have Data?	Bibliographic Citation	Must Additional Data be Submitted?	Time Frame for Submission
§158.142 Spray Drift.						
201-1 - Droplet Size Spectrum	TEP	B,D	No		Yes[1/3/]	12 month
202-1 - Drift Field Evaluation	TEP	B,D	Partial	00128879	Yes[2/3/]	12 month

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1/ The droplet spectrum study is to be performed to reflect the nozzle and other equipment types to be used in the application of bendiocarb in various outdoor uses.

2/ The spray drift field evaluation is to be performed to reflect the application equipment, use pattern, and typical locations of use, which includes different weather factors, in the application of bendiocarb.

3/ The spray drift droplet spectrum and field evaluation may be done together in order to evaluate the droplet spectra that are associated with actual field use patterns.

TABLE A
GENERIC DATA REQUIREMENTS FOR BENDIOCARB

Data Requirement	Composition	Use Patterns	Does EPA Have Data To Satisfy This Requirement? (Yes, No or Partially)	Bibliographic Citation	Must Additional Data be Submitted Under FIFRA §3(c)(2)(B)?	Timeframe For Submission
§158.135 Toxicology						
Acute Testing:						
81-1 - Acute Oral - Rat	TGAI	All	Yes	122322,58287	No	-
81-2 - Acute Dermal	TGAI	All	No	59263,122304	No[1]	-
81-3 - Acute Inhalation - Rat	TGAI	All	No	[89731]	Yes	9 Months
81-7 - Acute Delayed Neurotoxicity - Hen	TGAI	All	Yes	58740,59275	No	-
Subchronic Testing:						
82-1 - 90-Day Feeding -						
Rodent	TGAI	All	Yes	59267	No	-
Nonrodent	TGAI	All	Yes	60619	No	-

TABLE A
GENERIC DATA REQUIREMENTS FOR BENDIOCARB

Data Requirement	Composition[1]/	Use Patterns[2]/	Does EPA Have Data To Satisfy This Requirement? (Yes, No or Partially)	Bibliographic Citation	Must Additional Data be Submitted Under FIFRA §3(c)(2)(B)?[3]/	Timeframe For Submission
§158.135 Toxicology -						
Subchronic Testing:						
82-2 - 21-Day Dermal	TGAI	All	Yes	59264	No[2]	
82-3 - 90-Day Dermal	TGAI	—	No	—	No	
82-4 - 90-Day Inhalation - rat	TGAI	I	No	—	Yes	15 months
82-5 - 90-Day Neurotoxicity	TGAI	—	N/A	—	—	
Chronic Testing:						
83-1 - Chronic Toxicity						
Rodent	TGAI	A	Yes	27580,81271, 81596,26442	No	
Nonrodent	TGAI	A	Yes	79425	No	
83-2 - Oncogenicity Study						
Rat	TGAI	A	Yes	27580,81271, 81596,26442	Reserved[3]/	
Mouse	TGAI	A	Yes	80040	Reserved[3]/	
83-3 - Teratogenicity						
Rat	TGAI	All	Yes	56091,57230, 80039,58742	No	
Rabbit	TGAI	All	Yes	79426	No	
83-4 - Reproduction	TGAI	A	Yes	80039,58742	No	

TABLE A
GENERIC DATA REQUIREMENTS FOR BENDIOCARB

Data Requirement	Composition[1]/	Use Patterns[2]/	Does EPA Have Data To Satisfy This Requirement? (Yes, No or Partially)	Bibliographic Citation	Must Additional Data be Submitted Under FIFRA §3(c)(2)(B)?[3]/	Timeframe For Submission
§158.135 Toxicology -						
Mutagenicity Testing:						
84-2 - Gene Mutation	TGAI	All	No	--	Yes	9 Months
84-2 - Chromosomal Aberration	TGAI	All	No	--	Yes	12 Months
84-2 - Other Mechanisms of Mutagenicity	TGAI	All	No	--	Yes	12 Months
Special Testing:						
85-1 - General Metabolism	PAI or PAIRA	A	Yes	(86785,60613,60614,60616 60617,60618,62186,60613,79427)	No	
85-2 - Domestic Animal Safety		--	N/A	59277	No	

1/ An acute dermal toxicity study on rats is available is being used to fulfill this requirement.

2/ The 21-day dermal study using FICAM 80W is considered acceptable in fulfillment of this requirement.

3/ The requirement for oncogenicity studies in two species (rat and mouse) is contingent upon the results of the required mutagenicity studies. If required, special attention must be given to ocular effects. because of the finding of lenticular opacity in chronic feeding studies. If required, the 50 month timeframe begins after EPA has determined that the study is required.

TABLE A
GENERIC DATA REQUIREMENTS FOR BENDIOCARB

Guideline Citation	Data Requirement	Composition	Use Pattern	Does EPA Have Data To Satisfy This Requirement? (Yes, No or Partially	Bibliographic Citation	Must Additional Data Be Submitted Under FIFRA §3(c)(2)(B)	Timeframe For Submission
§158.145 Wildlife and Aquatic Organisms							
70-1	Aquatic Residue Monitoring	TEP(76%)	B	No	-	Yes[1]/	Protocol 3 Months Study 48 mos.
71-1	Avian Single-Dose Oral LD_{50}	TGAI	B[F-I][2]	Yes Yes	00121635 00071980	No	-
71-2	Avian Dietary LC_{50}	TGAI					
	Waterfowl Species		B[F-I][2]	Yes	00108889	No	-
	Upland Species		B	Yes	00108888	No	-
71-4	Avian Reproduction	TGAI					
	Waterfowl Species		B	Yes	00121640	No	-
	Upland Species		B	Yes	00121641	No	-
71-5	Actual Field Testing for Mammals & Birds	TEP(76 WP and 5 G)	B	No		Yes[3]	Protocol 6 mos/study 48 Months
72-1	Fish Acute LC_{50}	TGAI					
	Coldwater species		B	Yes	MCOBEN03	No	-
	Warmwater species		B[F-I][4]	Yes	MCOBEN04	No	-
72-2	Aquatic Invertebrate	TGAI	B[F-I][4]	Yes	00071988	No	-

TABLE A
GENERIC DATA REQUIREMENTS FOR BENDIOCARB

Guideline Citation	Data Requirement	Composition	Use Pattern	Does EPA Have Data To Satisfy This Requirement? (Yes, No or Partially	Bibliographic Citation	Must Additional Data Be Submitted Under FIFRA §3(c)(2)(B)	Timeframe For Submission
72-3	Estuarine & Marine Organism Acute LC_{50}	TGAI	B	No	-	Yes[4]	12 Months
72-4	Fish Early Life-Stage and Aquatic Invertebrate Life Cycle	TGAI	B	No	-	Yes[5]	15 Months
72-5	Fish Life Cycle	TGAI	B	No	-	Reserved[6]	-
72-6	Aquatic Organism Accumulation	TGAI	B	-	-	Yes[7]	12 Months
72-7	Simulated or Actual Field Testing for Aquatic Organisms	TEP	B	No	-	Reserved[6]	-

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1/ This is a requirement for residue monitoring of ponds with drainage basins of treated turf. Estimates of aquatic exposure exceed the acute aquatic invertebrate LC_{50}. The registrant is required to develop acceptable protocols (to be submitted within 3 months). The protocol developed for monitoring this chemical must be consider the following requirements; (i) use of standard analytical methods, i.e., HPLC or MSGC, and (ii) sites where rainfall or irrigation would ensure sufficient runoff equal to two inches of rain.

2/ Required to support the manufacturing use product for reformulation into these end-use products.

§ 158.145 Wildlife and Aquatic Organisms - Continued

3/ Hazard assessment of the use of bendiocarb on turf indicates a risk to birds and mammals. A terrestrial field study is needed to determine if the hazard indicated by laboratory studies for mammalian species and by both laboratory and pen tests for avian species is below levels of concern for mammalian and/or avian species under actual use conditions. A protocol must be submitted within 6 months. A Guidance Document is available from the Agency which outlines an acceptable approach to these studies. Registrants should consult with the Agency if necessary.

4/ Many golf courses border on marine/estuarine waters; bendiocarb use on turf can be expected to result in residues in marine/estuarine waters.

5/ This study is required because LC_{50}s are less than 1 mg/l and the Estimated Environmental Concentration (EEC) exceeds 1% of both the fish and invertebrate LC_{50}s.

6/ Reserved pending the results of the fish early life stage and aquatic invertebrate life cycle studies.

7/ Refer to environmental fate data requirements (165-5).

TABLE A
GENERIC DATA REQUIREMENTS FOR BENDIOCARB

Data Requirement	Composition	Use Pattern	Does EPA Have Data To Satisfy This Requirement? (Yes, No or Partially)	Bibliographic Citation (MRID or as noted	Must Additional Data Be Submitted Under FIFRA §3(c)(2)(B)	Timeframe For Submission
§158.155 Nontarget Insect						
NONTARGET INSECT TESTING - POLLINATORS:						
141-1 - Honey bee acute contact LD_{50}	TGAI	B,H	Yes		No	
141-2 - Honey bee - toxicity of residues on foliage	TEP	B,H	No		Yes[1]	15 Months
141-4 - Honey bee subacute feeding study	[Reserved][2]					
141-5 - Field testing for pollinators	TEP	B,H	No		No[3]	
NONTARGET INSECT TESTING - AQUATIC INSECTS:						
142-1 - Acute toxicity to aquatic insects	[Reserved][4]					
142-2 - Aquatic insect life cycle study	[Reserved][4]					
142-3 - Simulated or actual field testing for aquatic insects	[Reserved][4]					
143-1 thru 143-3 - NONTARGET INSECT TESTING - PREDATORS AND PARASITES	[Reserved][4]					

§ 158.155 Non-Target Insect - Continued

1/ As data from the acute contact test indicate high toxicity, data from a residual toxicity test are required.
2/ Reserved pending development of test methodology.
3/ This data requirement is imposed only on a case-by-case basis. Data reviewed under the Standard to date do not indicate the need for a field study.
4/ Reserved pending Agency decision as to whether the data requirement should be established.

TABLE B

PRODUCT SPECIFIC DATA REQUIREMENTS FOR MANUFACTURING-USE PRODUCTS CONTAINING BENDIOCARB

Data Requirement	Test Substance	Use Patterns	Does EPA Have Data? 1/	Bibliographic Citation 1/	Must Additional Data be Submitted?	Timeframe for Submission
§158.120 Product Chemistry						
Product Identity:						
61-1 - Product Identity and Disclosure of Ingredients	MP2/	All			Yes	6 Months
61-2 - Description of Beginning Materials and Manufacturing Process	MP	All			Yes	6 Months
61-3 - Discussion of Formation of Impurities	MP	All			Yes	6 Months
Analysis and Certification of Product Ingredients:						
62-1 - Preliminary Analysis	MP	All			Yes	12 Months
62-2 - Certification of Limits	MP	All			Yes	12 Months
62-3- Analytical Methods to Verify Certified Limit	MP	All			Yes	12 Months
Physical And Chemical Characteristics:						
63-2 - Color	MP	All			Yes	6 Months
63-3 - Physical State	MP	All			Yes	6 Months
63-4 - Odor	MP	All			Yes	6 Months

TABLE B
PRODUCT SPECIFIC DATA REQUIREMENTS FOR MANUFACTURING-USE PRODUCTS CONTAINING BENDIOCARB

Data Requirement	Test Substance	Use Patterns	Does EPA Have Data?1/	Bibliographic Citation 1/	Must Additional Data be Submitted?	Timeframe for Submission
§158.120 Product Chemistry (continued)						
Physical and Chemical Characteristics (continued)						
63-7 - Density, Bulk Density, or Specific Gravity	MP	All			Yes	7 Months
63-12 - pH	MP	All			Yes	7 Months
63-14 - Oxidizing or Reducing Action	MP	All			Yes	7 Months
63-15 - Flammability	MP	All			Yes	7 Months
63-16 - Explodability	MP	All			Yes	7 Months
63-17 - Storage Stability	MP	All			Yes	16 Months
63-18 - Viscosity	MP	All			Yes	7 Months
63-19 - Miscibility	MP	All			Yes	7 Months
63-20 - Corrosion Characteristics	MP	All			Yes	7 Months
Other Requirements:						
64-1 - Submittal of Samples	MP	All			Reserved3/	

1/ Although product chemistry data may have been submitted in the past, the Agency has determined that these data must be resubmitted for each manufacturing-use product. New requirements have been introduced and previously submitted data must be updated. Therefore, bibliographic citations for the old data are not applicable.

2/ Formulation intermediates are also included in the category of manufacturing-use products.

3/ If samples are needed, the Agency will request them.

TABLE B
PRODUCT SPECIFIC DATA REQUIREMENTS FOR MANUFACTURING-USE PRODUCTS CONTAINING BENDIOCARB

Data Requirement	Test Substance	Use Patterns	Does EPA Have Data?	Bibliographic Citation	Must Additional Data be Submitted?	Timeframe for Submission
ACUTE TESTING:						
81-1 - Acute Oral Toxicity - Rat	MP	All	No		Yes	9 Months
81-2 - Acute Dermal Toxicity - Rabbit	MP	All	No		Yes	9 Months
81-3 - Acute Inhalation Toxicity - Rat	MP	All	No		Yes	9 Months
81-4 - Primary Eye Irritation - Rabbit	MP	All	Yes	50817	No	-
81-5 - Primary Dermal Irritation - Rabbit	MP	All	Yes	50816	No	-
81-6 - Dermal Sensitization - Guinea Pig	MP	All	Yes	46484	No[1]	-

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1/ The dermal sensitization study using FICAM 80W is considered acceptable in fulfillment of this requirement.

APPENDIX II - LABELING

SUMMARY-1

LABEL CONTENTS

40 CFR 162.10 requires that certain specific labeling statements appear at certain locations on the label. This is referred to as format labeling. Specific label items listed below are keyed to the table at the end of this Appendix.

Item 1. PRODUCT NAME - The name, brand or trademark is required to be located on the front panel, preferably centered in the upper part of the panel. The name of a product will not be accepted if it is false or misleading.

Item 2. COMPANY NAME AND ADDRESS - The name and address of the registrant or distributor is required on the label. The name and address should preferably be located at the bottom of the front panel or at the end of the label text.

Item 3. NET CONTENTS - A net contents statement is required on all labels or on the container of the pesticide. The preferred location is the bottom of the front panel immediately above the company name and address, or at the end of the label text. The net contents must be expressed in the largest suitable unit, e.g., "1 pound 10 ounces" rather than "26 ounces." In addition to English units, net contents may be expressed in metric units. [40 CFR 162.10(d)]

Item 4. EPA REGISTRATION NUMBER - The registration number assigned to the pesticide product must appear on the label, preceded by the phrase "EPA Registration No.," or "EPA Reg. No." The registration number must be set in type of a size and style similar to other print on that part of the label on which it appears and must run parallel to it. The registration number and the required identifying phrase must not appear in such a manner as to suggest or imply recommendation or endorsement of the product by the Agency. [40 CFR 162.10(e)]

Item 5. EPA ESTABLISHMENT NUMBER - The EPA establishment number, preceded by the phrase "EPA Est." is the final establishment at which the product was produced, and may appear in any suitable location on the label or immediate container. It must also appear on the wrapper or outside container of the package if the EPA establishment number on the immediate container cannot be clearly read through such wrapper or container. [40 CFR 162.10(f)]

Item 6A. INGREDIENTS STATEMENT - An ingredients statement is required on the front panel. The ingredients statement must contain the name and percentage by weight of each active ingredient and the total percentage by weight of all inert ingredients. The preferred location is immediately below the product name. The ingredients statement must run parallel with, and be clearly distinguished from, other text on the panel. It must not be placed in the body of other text. [40 CFR 162.10(g)]

Item 6B. POUNDS PER GALLON STATEMENT - For liquid agricultural formulations, the pounds per gallon of active ingredient must be indicated on the label.

Item 7. FRONT LABEL PRECAUTIONARY STATEMENTS - Front panel precautionary statements must be grouped together, preferably within a block outline. The table below shows the minimum type size requirements for various size labels.

Size of Label on Front Panel in Square Inches	Signal Word Minimum Type Size All Capitals	"Keep Out of Reach of Children" Minimum Type Size
5 and under	6 point	6 point
above 5 to 10	10 point	6 point
above 10 to 15	12 point	8 point
above 15 to 30	14 point	10 point
over 30	18 point	12 point

Item 7A. CHILD HAZARD WARNING STATEMENT - The statement "Keep Out of Reach of Children" must be located on the front panel above the signal word except where contact with children during distribution or use is unlikely. [40 CFR 162.10(h)(1)(ii)]

Item 7B. SIGNAL WORD - The signal word (DANGER, WARNING, or CAUTION) is required on the front panel immediately below the child hazard warning statement. [40 CFR 162.10 (h)(1)(i)]

Item 7C. SKULL & CROSSBONES AND WORD "POISON" - On products assigned a toxicity Category I on the basis of oral, dermal, or inhalation toxicity, the word "Poison" shall appear on the label in red on a background of distinctly contrasting color and the skull and crossbones shall appear in immediate proximity to the word POISON. [40 CFR 162.10(h)(1)(i)]

Item 7D. STATEMENT OF PRACTICAL TREATMENT - A statement of practical treatment (first aid or other) shall appear on the label of pesticide products in toxicity Categories I, II, and III. [40 CFR 162.10(h)(1)(iii)]

Item 7E. REFERRAL STATEMENT - The statement "See Side (or Back) Panel for Additional Precautionary Statements" is required on the front panel for all products, unless all required precautionary statements appear on the front panel. [40 CFR 162.10(h)(1)(iii)]

Item 8. SIDE/BACK PANEL PRECAUTIONARY LABELING - The precautionary statements listed below must appear together on the label under the heading "PRECAUTIONARY STATEMENTS." The preferred location is at the top of the side or back panel preceding the directions for use, and it is preferred that these statements be surrounded by a block outline. Each of the three hazard warning statements must be headed by the appropriate hazard title. [40 CFR 162.10(h)(2)].

Item 8A. HAZARD TO HUMANS AND DOMESTIC ANIMALS - Where a hazard exists to humans or domestic animals, precautionary statements are required indicating the particular hazard, the route(s) of exposure and the precautions to be taken to avoid accident, injury or damage. [40 CFR 162.10(h)(2)(i)]

Item 8B. ENVIRONMENTAL HAZARD - Where a hazard exists to non-target organisms excluding humans and domestic animals, precautionary statements are required stating the nature of the hazard and the appropriate precautions to avoid potential accident, injury, or damage. [40 CFR 162.10(h)(2)(ii)]

Item 8C. PHYSICAL OR CHEMICAL HAZARD - FLAMMABILITY Precautionary statements relating to flammability of a product are required to appear on the label if it meets the criteria in the PHYS/CHEM Labeling Appendix. The requirement is based on the results of the flashpoint determinations and flame extension tests required to be submitted for all products. These statements are to be located in the side/back panel precautionary statements section, preceded by the heading "Physical/Chemical Hazards." Note that no signal word is used in conjunction with the flammability statements.

Item 9A. RESTRICTED USE CLASSIFICATION - FIFRA sec. 3(d) requires that all pesticide formulations/uses be classified for either general or restricted use. Products classified for restricted use may be limited to use by certified applicators or persons under their direct supervision (or may be subject to other restrictions that may be imposed by regulation).

In the Registration Standard, the Agency has (1) indicated certain formulations/uses are to be restricted (Section IV indicates why the product has been classified for restricted use); or (2) reserved any classification decision until appropriate data are submitted.

The Regulatory Position and Rationale states whether products containing this active ingredient are classified for restricted use. If they are restricted, the draft label(s) submitted to the Agency as part of your application must reflect this determination (see below).

If you do not believe that your product should be classified for restricted use, you must submit any information and rationale with your application for reregistration. During the Agency's review of your application, your proposed classification determination will be evaluated in accordance with the provisions of 40 CFR 162.11(c). You will be notified of the Agency's classification decision.

Classification Labeling Requirements

If your product has been classified for restricted use, the following label requirements apply:

1. All uses restricted.

a. The statement "Restricted Use Pesticide" must appear at the top of the front panel of the label. The statement must be set in type of the same minimum size as required for human hazard signal word (see table in 40 CFR 162.10(h)(1)(iv).

b. Directly below this statement on the front panel, a summary statement of the terms of restriction must appear (including the reasons for restriction if specified in Section I). If use is restricted to certified applicators, the following statement is required: "For retail sale to and use only by Certified Applicators or persons under their direct supervision and only for those uses covered by the Certified Applicator's Certification."

2. Some but not all uses restricted. If the Regulatory Position and Rationale states that some uses are classified for restricted use, and some are unclassified, several courses of action are available:

a. You may label the product for Restricted use. If you do so, you may include on the label uses that are unrestricted, but you may not distinguish them on the label as being unrestricted.

b. You may delete all restricted uses from your label and submit draft labeling bearing only unrestricted uses.

c. You may "split" your registration, i.e., register two separate products with identical formulations, one bearing only unrestricted uses, and the other bearing restricted uses. To do so, submit two applications for reregistration, each containing all forms and necessary labels. Both applications should be submitted simultaneously. Note that the products will be assigned separate registration numbers.

Item 9B. MISUSE STATEMENT - All products must bear the misuse statement, "It is a violation of Federal law to use this product in a manner inconsistent with its labeling." This statement appears at the beginning of the directions for use, directly beneath the heading of that section.

Item 10A. REENTRY STATEMENT - If a reentry interval has been established by the Agency, it must be included on the label. Additional worker protection statements may be required in accordance with PR Notice 83-2, March 29, 1983.

Item 10B. STORAGE AND DISPOSAL BLOCK - All labels are required to bear storage and disposal statements. These statements are developed for specific containers, sizes, and chemical content. These instructions must be grouped and appear under the heading "Storage and Disposal" in the directions for use. This heading must be set in the same type sizes as required for the child hazard warning. Refer to Appendix II, STOR, PEST/DIS, and CONT/DIS to determine the storage and disposal instructions appropriate for your products.

Item 10C. DIRECTIONS FOR USE - Directions for use must be stated in terms which can be easily read and understood by the average person likely to use or to supervise the use of the pesticide. When followed, directions must be adequate to protect the public from fraud and from personal injury and to prevent unreasonable adverse effects on the environment. [40 CFR 162.10]

COLLATERAL LABELING

Bulletins, leaflets, circulars, brochures, data sheets, flyers, or other written or graphic printed matter which is referred to on the label or which is to accompany the product are termed collateral labeling. Such labeling may not bear claims or representations that differ in substance from those accepted in connection with registration of the product. It should be made part of the response to this notice and submitted for review.

SUMMARY-6

LABELING REQUIREMENTS OF THE FIFRA, AS AMENDED

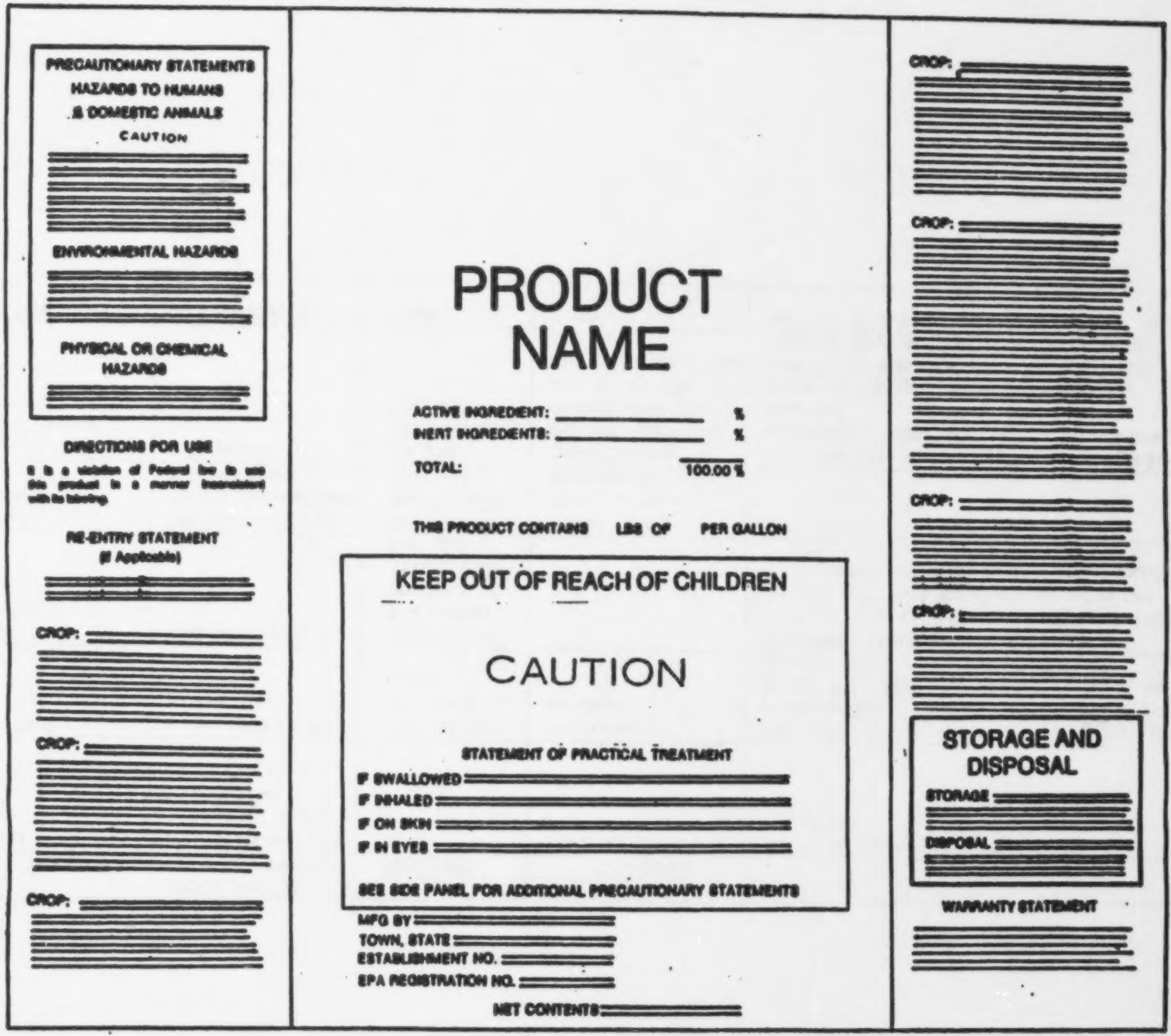
ITEM	LABEL ELEMENT	APPLICABILITY OF REQUIREMENT	PLACEMENT ON LABEL		COMMENTS
			REQUIRED	PREFERRED	
1	Product name	All products	Front panel	Center front panel	
2	Company name and address	All products	None	Bottom front panel or end of label text	If registrant is not the producer, must be qualified by "Packed for . . .," "Distributed by. . .," etc.
3	Net contents	All products	None	Bottom front panel or end of label text	May be in metric units in addition to U.S. units
4	EPA Reg. No.	All products	None	Front panel	Must be in similar type size and run parallel to other type.
5	EPA Est. No.	All products	None	Front panel, immediately before or following Reg. No.	May appear on the container instead of the label.
6A	Ingredients statement	All products	Front panel	Immediately following product name	Text must run parallel with other text on the panel.
6B	Pounds/gallon statement	Liquid products where dosage given as lbs. ai/unit area	Front panel	Directly below the main ingredients statement	
7	Front panel precautionary statements	All products	Front panel		All front panel precautionary statements must be grouped together, preferably blocked.
7A	Keep Out of Reach of Children (Child hazard warning)	All products	Front panel	Above signal word	Note type size requirements.
7B	Signal word	All products	Front panel	Immediately below child hazard warning	Note type size requirements.

SUMMARY-7

ITEM	LABEL ELEMENT	APPLICABILITY OF REQUIREMENT	PLACEMENT ON LABEL		COMMENTS
			REQUIRED	PREFERRED	
7C	Skull & crossbones and word POISON (in red)	All products which are Category I based on oral, dermal, or inhalation toxicity	Front panel	Both in close proximity to signal word	
7D	Statement of Practical Treatment or First Aid	All products in Categories I, II, and III	Category I: Front panel unless referral statement is used. Others: Grouped with side panel precautionary statements.	Front panel for all.	
7E	Referral statement	All products where precautionary labeling appears on other than front panel.	Front panel		
8	Side/back panel precautionary statements	All products	None	Top or side of back panel preceding directions for use	Must be grouped under the headings in 8A, 8B, and 8C; preferably blocked.
8A	Hazards to humans and domestic animals	All products in Categories I, II, and III	None	Same as above	Must be preceded by appropriate signal word.
8B	Environmental hazards	All products	None	Same as above	Environmental hazards include bee caution where applicable.

SUMMARY-8

ITEM	LABEL ELEMENT	APPLICABILITY OF REQUIREMENT	PLACEMENT ON LABEL		COMMENTS
			REQUIRED	PREFERRED	
8C	Physical or chemical hazards	All pressurized products, others with flash points under 150°F	None	Same as above	Refer to Appendix II guide PHYS/CHEM
9A	Restricted block	All restricted products	Top center of front panel	Preferably blocked	Includes a statement of the terms of restriction. The words "RESTRICTED USE PESTICIDE" must be same type size as signal word.
9B	Misuse statement	All products	Immediately following heading of directions for use		Required statement is: "It is a violation of Federal law to use this product in a manner inconsistent with its labeling."
10A	Reentry statement	PR Notice 83-2 or as determined by the Agency	In the directions for use	Immediately after misuse statement	
10B	Storage and disposal block	All products	In the directions for use	Immediately before specific directions for use or at the end of directions for use	Must be set apart and clearly distinguishable from from other directions for use. Refer to Appendix II guides STOR, CONT/DIS, and PEST/DIS for further information and required statements.
10C	Directions for use	All products	None	None	May be in metric as well as U.S. units



PRECAUTIONARY STATEMENTS
HAZARDS TO HUMANS
& DOMESTIC ANIMALS
CAUTION

ENVIRONMENTAL HAZARDS

PHYSICAL OR CHEMICAL HAZARDS

DIRECTIONS FOR USE

It is a violation of Federal law to use this product in a manner inconsistent with its labeling.

RE-ENTRY STATEMENT
(If Applicable)

CROP:

CROP:

CROP:

PRODUCT NAME

ACTIVE INGREDIENT: ______ %
INERT INGREDIENTS: ______ %
TOTAL: 100.00 %

THIS PRODUCT CONTAINS LBS OF PER GALLON

KEEP OUT OF REACH OF CHILDREN

CAUTION

STATEMENT OF PRACTICAL TREATMENT

IF SWALLOWED
IF INHALED
IF ON SKIN
IF IN EYES

SEE SIDE PANEL FOR ADDITIONAL PRECAUTIONARY STATEMENTS

MFG BY
TOWN, STATE
ESTABLISHMENT NO.
EPA REGISTRATION NO.
NET CONTENTS

CROP:

CROP:

CROP:

CROP:

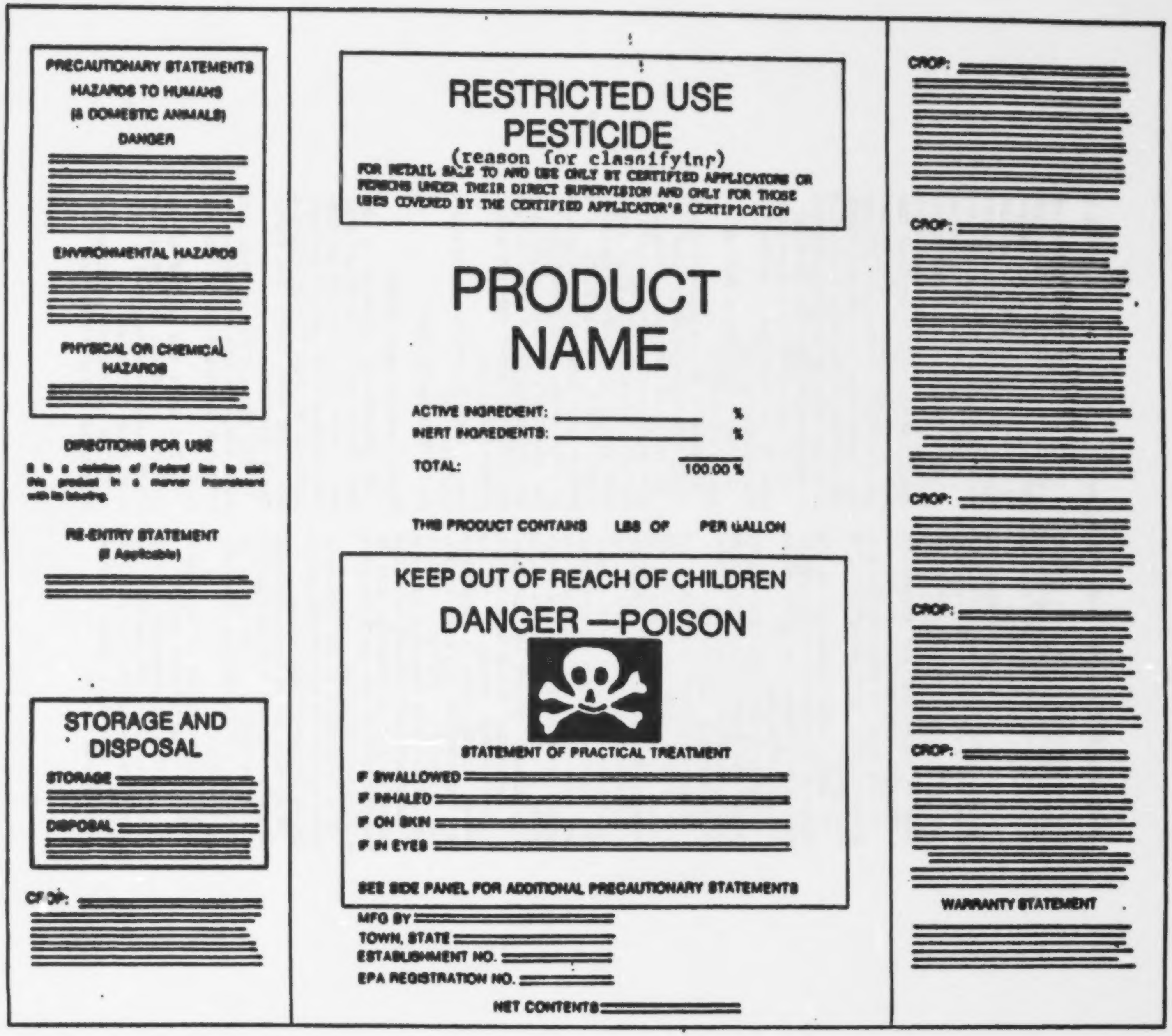
STORAGE AND DISPOSAL

STORAGE

DISPOSAL

WARRANTY STATEMENT

]



PRECAUTIONARY STATEMENTS
HAZARDS TO HUMANS
(& DOMESTIC ANIMALS)
DANGER

ENVIRONMENTAL HAZARDS

PHYSICAL OR CHEMICAL
HAZARDS

DIRECTIONS FOR USE

It is a violation of Federal law to use this product in a manner inconsistent with its labeling.

RE-ENTRY STATEMENT
(If Applicable)

STORAGE AND
DISPOSAL

STORAGE:
DISPOSAL:

CROP:

RESTRICTED USE
PESTICIDE
(reason for classifying)

FOR RETAIL SALE TO AND USE ONLY BY CERTIFIED APPLICATORS OR PERSONS UNDER THEIR DIRECT SUPERVISION AND ONLY FOR THOSE USES COVERED BY THE CERTIFIED APPLICATOR'S CERTIFICATION

PRODUCT
NAME

ACTIVE INGREDIENT: ________ %
INERT INGREDIENTS: ________ %
TOTAL: 100.00 %

THIS PRODUCT CONTAINS LBS OF PER GALLON

KEEP OUT OF REACH OF CHILDREN
DANGER —POISON

STATEMENT OF PRACTICAL TREATMENT
IF SWALLOWED
IF INHALED
IF ON SKIN
IF IN EYES

SEE SIDE PANEL FOR ADDITIONAL PRECAUTIONARY STATEMENTS

MFG BY
TOWN, STATE
ESTABLISHMENT NO.
EPA REGISTRATION NO.
NET CONTENTS

CROP:

CROP:

CROP:

CROP:

CROP:

WARRANTY STATEMENT

(iv) The product registration number as prescribed in paragraph (e) of this section;

(v) The producing establishment number as prescribed in paragraph (f) of this section;

(vi) An ingredient statement as prescribed in paragraph (g) of this section;

(vii) Warning or precautionary statements as prescribed in paragraph (h) of this section;

(viii) The directions for use as prescribed in paragraph (i) of this section; and

(ix) The use classification(s) as prescribed in paragraph (j) of this section.

(2) *Prominence and legibility.* (i) All words, statements, graphic representations, designs or other information required on the labeling by the Act or the regulations in this part must be clearly legible to a person with normal vision, and must be placed with such conspicuousness (as compared with other words, statements, designs, or graphic matter on the labeling) and expressed in such terms as to render it likely to be read and understood by the ordinary individual under customary conditions of purchase and use.

(ii) All required label text must:

(A) Be set in 6-point or larger type;

(B) Appear on a clear contrasting background; and

(C) Not be obscured or crowded.

(3) *Language to be used.* All required label or labeling text shall appear in the English language. However, the Agency may require or the applicant may propose additional text in other languages as is considered necessary to protect the public. When additional text in another language is necessary, all labeling requirements will be applied equally to both the English and other-language versions of the labeling.

(4) *Placement of Label*—(i) *General.* The label shall appear on or be securely attached to the immediate container of the pesticide product. For purposes of this Section, and the misbranding provisions of the Act, "securely attached" shall mean that a label can reasonably be expected to remain affixed during the foreseeable conditions and period of use. If the immediate container is enclosed within a wrapper or outside container through which the label cannot be clearly read, the label must also be securely attached to such outside wrapper or container, if it is a part of the package as customarily distributed or sold.

(ii) *Tank cars and other bulk containers*—(A) *Transportation.* While a pesticide product is in transit, the appropriate provisions of 49 CFR Parts 170-189, concerning the transportation of hazardous materials, and specifically those provisions concerning the labeling, marking and placarding of hazardous materials and the vehicles carrying them, define the basic Federal requirements. In addition, when any registered pesticide product is transported in a tank car, tank truck or other mobile or portable bulk container, a copy of the accepted label must be attached to the shipping papers, and left with the consignee at the time of delivery.

(B) *Storage.* When pesticide products are stored in bulk containers, whether mobile or stationary, which remain in the custody of the user, a copy of the label of labeling, including all appropriate directions for use, shall be securely attached to the container in the immediate vicinity of the discharge control valve.

(5) *False or misleading statements.* Pursuant to section 2(q)(1)(A) of the Act, a pesticide or a device declared subject to the Act pursuant to § 162.15, is misbranded if its labeling is false or misleading in any particular including both pesticidal and non-pesticidal claims. Examples of statements or representations in the labeling which constitute misbranding include:

(i) A false or misleading statement concerning the composition of the product;

(ii) A false or misleading statement concerning the effectiveness of the product as a pesticide or device;

(iii) A false or misleading statement about the value of the product for purposes other than as a pesticide or device;

(iv) A false or misleading comparison with other pesticides or devices;

(v) Any statement directly or indirectly implying that the pesticide or device is recommended or endorsed by any agency of the Federal Government;

(vi) The name of a pesticide which contains two or more principal active ingredients if the name suggests one or more but not all such principal active ingredients even though the names of the other ingredients are stated elsewhere in the labeling;

(vii) A true statement used in such a way as to give a false or misleading impression to the purchaser;

(viii) Label disclaimers which negate or detract from labeling statements required under the Act and these regulations;

(ix) Claims as to the safety of the pesticide or its ingredients, including statements such as "safe," "nonpoisonous," "noninjurious," "harmless" or "nontoxic to humans and pets" with or without such a qualifying phrase as "when used as directed"; and

(x) Non-numerical and/or comparative statements on the safety of the product, including but not limited to:

(A) "Contains all natural ingredients";

(B) "Among the least toxic chemicals known"

(C) "Pollution approved"

(6) *Final printed labeling.* (i) Except as provided in paragraph (a)(6)(ii) of this section, final printed labeling must be submitted and accepted prior to registration. However, final printed labeling need not be submitted until draft label texts have been provisionally accepted by the Agency.

(ii) Clearly legible reproductions or photo reductions will be accepted for unusual labels such as those silk-screened directly onto glass or metal containers or large bag or drum labels. Such reproductions must be of microfilm reproduction quality.

(b) *Name, brand, or trademark.* (1) The name, brand, or trademark under which the pesticide product is sold shall appear on the front panel of the label.

(2) No name, brand, or trademark may appear on the label which:

(i) Is false or misleading, or

(ii) Has not been approved by the Administrator through registration or supplemental registration as an additional name pursuant to § 162.6(b)(4).

(c) *Name and address of producer, registrant, or person for whom produced.* An unqualified name and address given on the label shall be considered as the name and address of the producer. If the registrant's name appears on the label and the registrant is not the producer, or if the name of the person for whom the pesticide was produced appears on the label, it must be qualified by appropriate wording such as "Packed for * * *," "Distributed by * * *," or "Sold by * * *" to show that the name is not that of the producer.

(d) *Net weight or measure of contents.* (1) The net weight or measure of content shall be exclusive of wrappers or other materials and shall be the average content unless explicitly stated as a minimum quantity.

(2) If the pesticide is a liquid, the net content statement shall be in terms of liquid measure at 68° F (20°C) and shall be expressed in conventional American units of fluid ounces, pints, quarts, and gallons.

(3) If the pesticide is solid or semisolid, viscous or pressurized, or is a mixture of liquid and solid, the net content statement shall be in terms of weight expressed as avoirdupois pounds and ounces.

(4) In all cases, net content shall be stated in terms of the largest suitable units, i.e., "1 pound 10 ounces" rather than "26 ounces."

(5) In addition to the required units specified, net content may be expressed in metric units.

(6). Variation above minimum content or around an average is permissible only to the extent that it represents deviation unavoidable in good manufacturing practice. Variation below a stated minimum is not permitted. In no case shall the average content of the packages in a shipment fall below the stated average content.

(e) *Product registration number.* The registration number assigned to the pesticide product at the time of registration shall appear on the label, preceded by the phrase "EPA Registration No.," or the phrase "EPA Reg. No." The registration number shall be set in type of a size and style similar to other print on that part of the label on which it appears and shall run parallel to it. The registration number and the required identifying phrase shall not appear in such a manner as to suggest or imply recommendation or endorsement of the product by the Agency.

(f) *Producing establishments registration number.* The producing establishment registration number preceded by the phrase "EPA Est.", of the final establishment at which the product was produced may appear in any suitable location on the label or immediate container. It must appear on the wrapper or outside container of the package if the EPA establishment registration number on the immediate container cannot be clearly read through such wrapper or container.

(g) *Ingredient statement*—(1) *General.* The label of each pesticide product must bear a statement which contains the name and percentage by weight of each active ingredient, the total percentage by weight of all inert ingredients; and if the pesticide contains arsenic in any form, a statement of the percentages of total and water-soluble arsenic calculated as elemental arsenic. The active ingredients must be designated by the term "active ingredients" and the inert ingredients by the term "inert ingredients," or the singular forms of these terms when appropriate. Both terms shall be in the same type size, be aligned to the same margin and be equally prominent. The statement "Inert ingredients, none" is not required for pesticides which contain 100 percent active ingredients. Unless the ingredient statement is a complete analysis of the pesticide, the term "analysis" shall not be used as a heading for the ingredient statement.

(2) *Position of ingredient statement.* (i) The ingredient statement is normally required on the front panel of the label. If there is an outside container or wrapper through which the ingredient statement cannot be clearly read, the ingredient statement must also appear on such outside container or wrapper. If the size or form of the package makes it impracticable to place the ingredient statement on the front panel of the label, permission may be granted for the ingredient statement to appear elsewhere.

(ii) The text of the ingredient statement must run parallel with other text on the panel on which it appears, and must be clearly distinguishable from and must not be placed in the body of other text.

(3) *Names to be used in ingredient statement.* The name used for each ingredient shall be the accepted common name, if there is one, followed by the chemical name. The common name may be used alone only if it is well known. If no common name has been established, the chemical name alone shall be used. In no case will the use of a trademark or proprietary name be permitted unless such name has been accepted as a common name by the Administrator under the authority of Section 25(c)(6).

(4) *Statements of percentages.* The percentages of ingredients shall be stated in terms of weight-to-weight. The sum of percentages of the active and the inert ingredients shall be 100. Percentages shall not be expressed by a range of values such as "22-25%." If the uses of the pesticide product are expressed as weight of active ingredient per unit area, a statement of the weight of active ingredient per unit volume of the pesticide formulation shall also appear in the ingredient statement.

(5) *Accuracy of stated percentages.* The percentages given shall be as precise as possible reflecting good manufacturing practice. If there may be unavoidable variation between manufacturing batches, the value stated for each active ingredient shall be the lowest percentage which may be present.

(6) *Deterioration.* Pesticides which change in chemical composition significantly must meet the following labeling requirements:

(i) In cases where it is determined that a pesticide formulation changes chemical composition significantly, the product must bear the following statement in a prominent position on the label: "Not for sale or use after [date]."

(ii) The product must meet all label claims up to the expiration time indicated on the label.

(7) *Inert ingredients.* The Administrator may require the name of any inert ingredient(s) to be listed in the ingredient statement if he determines that such ingredient(s) may pose a hazard to man or the environment.

(h) *Warnings and precautionary statements.* Required warnings and precautionary statements concerning the general areas of toxicological hazard including hazard to children, environmental hazard, and physical or chemical hazard fall into two groups; those required on the front panel of the labeling and those which may appear elsewhere. Specific requi
ments concerning content, placeme
type size, and prominence are giv
below.

(1) *Required front panel statemen*
With the exception of the chi
hazard warning statement, the text
quired on the front panel of the lal
is determined by the Toxicity Categ
ry of the pesticide. The category is
signed on the basis of the highe
hazard shown by any of the indicato
in the table below:

Hazard indicators	Toxicity categories			
	I	II	III	IV
Oral LD_{50}	Up to and including 50 mg/kg	From 50 thru 500 mg/kg	From 500 thru 5000 mg/kg	Greater than 5000 mg/kg
Inhalation LC_{50}	Up to and including .2 mg/liter	From .2 thru 2 mg/liter	From 2. thru 20 mg/liter	Greater than 20 mg/
Dermal LD_{50}	Up to and including 200 mg/kg	From 200 thru 2000	From 2,000 thru 20,000	Greater than 20,000
Eye effects	Corrosive; corneal opacity not reversible within 7 days	Corneal opacity reversible within 7 days; irritation persisting for 7 days	No corneal opacity; irritation reversible within 7 days	No irritation
Skin effects	Corrosive	Severe irritation at 72 hours	Moderate irritation at 72 hours	Mild or slight irritation 72 hours

(i) *Human hazard signal word*—(A) *Toxicity Category I.* All pesticide products meeting the criteria of Toxicity Category I shall bear on the front panel the signal word "Danger." In addition if the product was assigned to Toxicity Category I on the basis of its oral, inhalation or dermal toxicity (as distinct from skin and eye local effects) the word "Poison" shall appear in red on a background of distinctly contrasting color and the skull and crossbones shall appear in immediate proximity to the word "poison."

(B) *Toxicity Category II.* All pesticide products meeting the criteria of Toxicity Category II shall bear on the front panel the signal word "Warning."

(C) *Toxicity Category III.* All pesticide products meeting the criteria of Toxicity Category III shall bear on the front panel the signal word "Caution."

(D) *Toxicity Category IV.* All pesticide products meeting the criteria of Toxicity Category IV shall bear on the front panel the signal word "Caution."

(E) *Use of signal words.* Use of any signal word(s) associated with a higher
Toxicity Category is not permitt
except when the Agency determin
that such labeling is necessary to p
vent unreasonable adverse effects
man or the environment. In no c
shall more than one human haz
signal word appear on the front pa
of a label.

(ii) *Child hazard warning.* Every p
ticide product label shall bear on t
front panel the statement "keep out
reach of children." Only in ca
where the likelihood of contact w
children during distribution, mark
ing, storage or use is demonstrated
the applicant to be extremely remo
or if the nature of the pesticide is su
that it is approved for use on infar
or small children, may the Administ
tor waive this requirement.

(iii) *Statement of practical tre*
ment—(A) *Toxicity Category I.*
statement of practical treatment (fi
aid or other) shall appear on the fro
panel of the label of all pesticides fa
ing into Toxicity Category I on t
basis of oral, inhalation or dermal to
icity. The Agency may, howev
permit reasonable variations in t
placement of the statement of prac

cal treatment is some reference such as "See statement of practical treatment on back panel" appears on the front panel near the word "Poison" and the skull and crossbones.

(B) *Other toxicity categories.* The statement of practical treatment is not required on the front panel except as described in paragraph (h)(1)(iii)(A) of this section. The applicant may, however, include such a front panel statement at his option. Statements of practical treatment are, however, required elsewhere on the label in accord with paragraph (h)(2) of this section if they do not appear on the front panel.

(iv) *Placement and prominence.* All the require front panel warning statements shall be grouped together on the label, and shall appear with sufficient prominence relative to other front panel text and graphic material to make them unlikely to be overlooked under customary conditions of purchase and use. The following table shows the minimum type size requirements for the front panel warning statements on various sizes of labels:

Size of label front panel in square inches	Points	
	Required signal word, all capitals	"Keep out of reach of Children"
5 and under	6	6
Above 5 to 10	10	6
Above 10 to 15	12	8
Above 15 to 30	14	10
Over 30	18	12

(2) *Other required warnings and precautionary statements.* The warnings and precautionary statements as required below shall appear together on the label under the general heading "Precautionary Statements" and under appropriate subheadings of "Hazard to Humans and Domestic Animals," "Environmental Hazard" and "Physical or Chemical Hazard."

(i) *Hazard to humans and domestic animals.* (A) Where a hazard exists to humans or domestic animals, precautionary statements are required indicating the particular hazard, the route(s) of exposure and the precautions to be taken to avoid accident, injury or damage. The precautionary paragraph shall be immediately preceded by the appropriate hazard signal word.

(B) The following table depicts typical precautionary statements. These statements must be modified or expanded to reflect specific hazards.

Toxicity category	Precautionary statements by toxicity category	
	Oral, inhalation, or dermal toxicity	Skin and eye local effects
I	Fatal (poisonous) if swallowed [inhaled or absorbed through skin]. Do not breathe vapor [dust or spray mist]. Do not get in eyes, on skin, or on clothing [Front panel statement of practical treatment required].	Corrosive, causes eye and skin damage [or skin irritation]. Do not get in eyes, on skin, or on clothing. Wear goggles or face shield and rubber gloves when handling. Harmful or fatal if swallowed. [Appropriate first aid statement required.]
II	May be fatal if swallowed [inhaled or absorbed through the skin]. Do not breathe vapors [dust or spray mist]. Do not get in eyes, on skin, or on clothing. [Appropriate first aid statements required].	Causes eye [and skin] irritation. Do not get in eyes, on skin, or on clothing. Harmful if swallowed. [Appropriate first aid statement required.]
III	Harmful if swallowed [inhaled or absorbed through the skin]. Avoid breathing vapors [dust or spray mist]. Avoid contact with skin [eyes or clothing]. [Appropriate first aid statement required].	Avoid contact with skin, eyes or clothing. In case of contact immediately flush eyes or skin with plenty of water. Get medical attention if irritation persists.
IV	[No precautionary statements required.]	[No precautionary statements required.]

(ii) *Environmental hazards.* Where a hazard exists to non target organisms excluding humans and domestic animals, precautionary statements are required stating the nature of the hazard and the appropriate precautions to avoid potential accident, injury or damage. Examples of the hazard statements and the circumstances under which they are required follow:

(A) If a pesticide intended for outdoor use contains an active ingredient with a mammalian acute oral LD_{50} of 100 or less, the statement "This Pesticide is Toxic to Wildlife" is required.

(B) If a pesticide intended for outdoor use contains an active ingredient with a fish acute LC_{50} of 1 ppm or less, the statement "This Pesticide is Toxic to Fish" is required.

(C) If a pesticide intended for outdoor use contains an active ingredient with an avian acute oral LD_{50} of 100 mg/kg or less, or a subacute dietary LC_{50} of 500 ppm or less, the statement "This Pesticide is Toxic to Wildlife" is required.

(D) If either accident history or field studies demonstrate that use of the pesticide may result in fatality to birds, fish or mammals, the statement "This pesticide is extremely toxic to wildlife (fish)" is required.

(E) For uses involving foliar application to agricultural crops, forests, or shade trees, or for mosquito abatement treatments, pesticides toxic to pollinating insects must bear appropriate label cautions.

(F) For all outdoor uses other than aquatic applications the label must bear the caution "Keep out of lakes, ponds or streams. Do not contaminate water by cleaning of equipment or disposal of wastes."

(iii) *Physical or chemical hazards.* Warning statements on the flammability or explosive characteristics of the pesticide are required as follows:

Flash point	Required text
(A) PRESSURIZED CONTAINERS	
Flash point at or below 20° F; if there is a flashback at any valve opening.	Extremely flammable. Contents under pressure. Keep away from fire, sparks, and heated surfaces. Do not puncture or incinerate container. Exposure to temperatures above 130° F may cause bursting.
Flash point above 20° F and not over 80° F or if the flame extension is more than 18 in long at a distance of 6 in from the flame.	Flammable. Contents under pressure. Keep away from heat, sparks, and open flame. Do not puncture or incinerate container. Exposure to temperatures above 130° F may cause bursting.
All other pressurized containers	Contents under pressure. Do not use or store near heat or open flame. Do not puncture or incinerate container. Exposure to temperatures above 130° F may cause bursting.
(B) NONPRESSURIZED CONTAINERS	
At or below 20° F	Extremely flammable. Keep away from fire, sparks, and heated surfaces.
Above 20° F and not over 80° F	Flammable. Keep away from heat and open flame.
Above 80° F and not over 150° F	Do not use or store near heat or open flame.

(i) *Directions for Use*—(1) *General requirements*—(i) *Adequacy and clarity of directions.* Directions for use must be stated in terms which can be easily read and understood by the average person likely to use or to supervise the use of the pesticide. When followed, directions must be adequate to protect the public from fraud and from personal injury and to prevent unreasonable adverse effects on the environment.

(ii) *Placement of directions for use.* Directions may appear on any portion of the label provided that they are conspicuous enough to be easily read by the user of the pesticide product. Directions for use may appear on printed or graphic matter which accompanies the pesticide provided that:

(A) If required by the Agency, such printed or graphic matter is securely attached to each package of the pesticide, or placed within the outside wrapper or bag;

(B) The label bears a reference to the directions for use in accompanying leaflets or circulars, such as "See directions in the enclosed circular:" and

(C) The Administrator determines that it is not necessary for such directions to appear on the label.

(iii) *Exceptions to requirement for direction for use*—(A) Detailed directions for use may be omitted from labeling of pesticides which are intended for use only by manufacturers of products other than pesticide products in their regular manufacturing processes, provided that:

(*1*) The label clearly shows that the product is intended for use only in manufacturing processes and specifies the type(s) of products involved.

(*2*) Adequate information such as technical data sheets or bulletins, is available to the trade specifying the type of product involved and its proper use in manufacturing processes;

(*3*) The product will not come into the hands of the general public except after incorporation into finished products; and

(*4*) The Administrator determines that such directions are not necessary to prevent unreasonable adverse effects on man or the environment.

(B) Detailed directions for use may be omitted from the labeling of pesticide products for which sale is limited to physicians, veterinarians, or druggists, provided that:

(*1*) The label clearly states that the product is for use only by physicians or veterinarians;

(*2*) The Administrator determines that such directions are not necessary to prevent unreasonable adverse effects on man or the environment; and

(*3*) The product is also a drug and regulated under the provisions of the Federal Food, Drug and Cosmetic Act.

(C) Detailed directions for use may be omitted from the labeling of pesticide products which are intended for use only by formulators in preparing pesticides for sale to the public, provided that:

(*1*) There is information readily available to the formulators on the composition, toxicity, methods of use, applicable restrictions or limitations, and effectiveness of the product for pesticide purposes;

(*2*) The label clearly states that the product is intended for use only in manufacturing, formulating, mixing, or repacking for use as a pesticide and specifies the type(s) of pesticide products involved;

(*3*) The product as finally manufactured, formulated, mixed, or repackaged is registered; and

(*4*) The Administrator determines that such directions are not necessary to prevent unreasonable adverse effects on man or the environment.

(3) *Contents of Directions for Use.* The directions for use shall include the following, under the headings "Directions for Use":

(i) The statement of use classification as prescribed in 162.10(j) immediately under the heading "Directions for Use."

(ii) Immediately below the statement of use classification, the statement "It is a violation of Federal law to use this product in a manner inconsistent with its labeling."

(iii) The site(s) of application, as for example the crops, animals, areas, or objects to be treated.

(iv) The target pest(s) associated with each site.

(v) The dosage rate associated with each site and pest.

(vi) The method of application, including instructions for dilution, if required, and type(s) of application apparatus or equipment required.

(vii) The frequency and timing of applications necessary to obtain effective results without causing unreasonable adverse effects on the environment.

(viii) Specific limitations on reentry to areas where the pesticide has been applied, meeting the requirements concerning reentry provided by 40 CFR Part 170.

(ix) Specific directions concerning the storage and disposal of the pesticide and its container, meeting the requirements of 40 CFR Part 165. These instructions shall be grouped and appear under the heading "Storage and Disposal." This heading must be set in type of the same minimum sizes as required for the child hazard warning (See Table in § 162.10(h)(1)(iv).)

(x) Any limitations or restrictions on use required to prevent unreasonable adverse effects, such as:

(A) Required intervals between application and harvest of food or feed crops.

(B) Rotational crop restrictions.

(C) Warnings as required against use on certain crops, animals, objects, or in or adjacent to certain areas.

(D) [Reserved]

(E) For restricted use pesticides, a statement that the pesticide may be applied under the direct supervision of a certified applicator who is not physically present at the site of application but nonetheless available to the person applying the pesticide, unless the Agency has determined that the pesticide may only be applied under the direct supervision of a certified applicator who is physically present.

(F) Other pertinent information which the Administrator determines to be necessary for the protection of man and the environment.

(j) *Statement of Use Classification.* By October 22, 1976, all pesticide products must bear on their labels a statement of use classification as described in paragraphs (j)(1) and (2) of this section. Any pesticide product for which some uses are classified for general use and others for restricted use shall be separately labeled according to the labeling standards set forth in this subsection, and shall be marketed as separate products with different registration numbers, one bearing directions only for general use(s) and the other bearing directions for restricted use(s) except that, if a product has both restricted use(s) and general use(s), both of these uses may appear on a product labeled for restricted use. Such products shall be subject to the provisions of § 162.10(j)(2).

(1) *General Use Classification.* Pesticide products bearing directions for use(s) classified general shall be labeled with the exact words "General Classification" immediately below the heading "Directions for Use." And reference to the general classification that suggests or implies that the general utility of the pesticide extends beyond those purposes and uses contained in the Directions for Use will be considered a false or misleading statement under the statutory definitions of misbranding.

(2) *Restricted Use Classification.* Pesticide products bearing direction for use(s) classified restricted shall bear statements of restricted use classification on the front panel as described below:

(i) *Front panel statement of restricted use classification.* (A) At the top of the front panel of the label, set in type of the same minimum sizes as required for human hazard signal words (see table in § 162.10(h)(1)(iv)), and appearing with sufficient prominence relative to other text and graphic material on
the front panel to make it unlikely
be overlooked under customary con
tions of purchase and use, the stat
ment "Restricted Use Pesticide" sh
appear.

(B) Directly below this statement
the front panel, a summary stateme
of the terms of restriction imposed
a precondition to registration sh
appear. If use is restricted to certifi
applicators, the following statement
required: "For retail sale to and u
only by Certified Applicators or pe
sons under their direct supervision a
only for those uses covered by the C
tified Applicator's certification."
however, other regulatory restrictio
are imposed, the Administrator w
define the appropriate wording for t
terms of restriction by regulation.

(k) *Advertising.* [Reserved]

[40 FR 28268, July 3, 1975; 40 FR 323
Aug. 1, 1975; 40 FR 36571, Aug. 21, 1975,
amended at 43 FR 5786, Feb. 9, 1978]

~~§ 162.11 Criteria for determinations of~~
~~reasonable adverse effects.~~

~~(a) *Criteria for Issuance of Notice*~~
~~*Intent to Deny Registration, Can*~~
~~*Registration, or to Hold a Hearin*~~
~~(1) *Presumption.* (i) A rebuttable p~~
~~sumption shall arise that a notice~~
~~intent to deny registration pursuant~~
~~section 3(c)(6) of the Act, a notice~~
~~intent to cancel registration pursua~~
~~to section 6(b)(1) of the Act, or~~
~~notice of intent to hold a hearing~~
~~determine whether the registrati~~
~~should be cancelled or denied, as~~
~~propriate, shall be issued, upon a~~
~~termination by the Administrator th~~
~~the pesticide meets or exceeds any~~
~~the criteria for risk set forth in pa~~
~~graph (a)(3) of this section. Upon su~~
~~determination, the Administrat~~
~~shall issue notice by certified mail~~
~~the applicant or registrant, as the ca~~
~~may be, stating that the applicant~~
~~registrant has the opportunity~~
~~submit evidence in rebuttal of su~~
~~presumption in accordance with par~~
~~graph (a)(4) of this section. The app~~
~~cant or registrant shall have forty-fi~~
~~(45) days from the date such notice~~
~~sent to submit evidence in rebuttal~~
~~the presumption; provided, howev~~
~~that for good cause shown the Admi~~
~~nistrator may grant an additional six~~

PHYS/CHEM-1

PHYSICAL/CHEMICAL HAZARDS

Criteria	Required Label Statement
I. Pressurized Containers	
A. Flashpoint at or below 20°F; or if there is a flashback at any valve opening.	Extremely flammable. Contents under pressure. Keep away from fire, sparks, and heated surfaces. Do not puncture or incinerate container. Exposure to temperatures above 130°F may cause bursting.
B. Flashpoint above 20°F and not over 80°F; or if the flame extension is more than 18 inches long at a distance of 6 inches from the valve opening.	Flammable. Contents under pressure. Keep away from heat, sparks, and flame. Do not puncture or incinerate container. Exposure to temperatures above 130°F may cause bursting.
C. All Other Pressurized Containers	Contents under pressure. Do not use or store near heat or open flame. Do not puncture or incinerate container. Exposure to temperatures above 130°F may cause bursting.
II. Non-Pressurized Containers	
A. Flashpoint at or below 20°F.	Extremely flammable. Keep away from fire, sparks, and heated surfaces.
B. Flashpoint above 20°F and not over 80°F.	Flammable. Keep away from heat and open flame.
C. Flashpoint over 80°F and not over 150°F.	Do not use or store near heat and open flame.
D. Flashpoint above 150°F.	None required.

STORAGE INSTRUCTIONS FOR PESTICIDES

Heading:

All products are required to bear specific label instructions about storage and disposal. Storage and disposal instructions must be grouped together in the directions for use portion of the label under the heading STORAGE AND DISPOSAL. Products intended solely for domestic use need not include the heading "STORAGE AND DISPOSAL."

Storage Instructions:

All product labels are required to have appropriate storage instructions. Specific storage instructions are not prescribed. Each registrant must develop his own storage instructions, considering, when applicable, the following factors:

1. Conditions of storage that might alter the composition or usefulness of the pesticide. Examples could be temperature extremes, excessive moisture or humidity, heat, sunlight, friction, or contaminating substances or media.

2. Physical requirements of storage which might adversely affect the container of the product and its ability to continue to function properly. Requirements might include positioning of the container in storage, storage or damage due to stacking, penetration of moisture, and ability to withstand shock or friction.

3. Specifications for handling the pesticide container, including movement of container within the storage area, proper opening and closing procedures (particularly for opened containers), and measures to minimize exposure while opening or closing container.

4. Instructions on what to do if the container is damaged in any way, or if the pesticide is leaking or has been spilled, and precautions to minimize exposure if damage occurs.

5. General precautions concerning locked storage, storage in original container only, and separation of pesticides during storage to prevent cross-contamination of other pesticides, fertilizer, food, and feed.

6. General storage instructions for household products should emphasize storage in original container and placement in locked storage areas.

CONTAINER DISPOSAL INSTRUCTIONS

The label of each product must bear container disposal instructions appropriate to the type of container.

1. Domestic use products must bear one of the following container disposal statements:

Container Type	Statement
Non-aerosol products (bottles, cans, jars)	Do not reuse container (bottle, can, jar). Rinse thoroughly before discarding in trash.
Non-aerosol products (bags)	Do not reuse bag. Discard bag in trash.
Aerosol products	Replace cap and discard containers in trash. Do not incinerate or puncture.

2. All other products must bear container disposal instructions, based on container type, listed below:

Container Type	Statement
Metal containers (non-aerosol)	Triple rinse (or equivalent). Then offer for recycling or reconditioning, or puncture and dispose of in a sanitary landfill, or by other procedures approved by state and local authorities.
Plastic containers	Triple rinse (or equivalent). Then offer for recycling or reconditioning, or puncture and dispose of in a sanitary landfill, or incineration, or, if allowed by state and local authorities, by burning. If burned, stay out of smoke.
Glass containers	Triple rinse (or equivalent). Then dispose of in a sanitary landfill or by other approved state and local procedures.
Fiber drums with liners	Completely empty liner by shaking and tapping sides and bottom to loosen clinging particles. Empty residue into application equipment. Then dispose of liner in a sanitary landfill or by incineration if allowed by state and local authorities. If drum is contaminated and cannot be reused[1], dispose of in the same manner.
Paper and plastic bags	Completely empty bag into application equipment. Then dispose of empty bag in a sanitary landfill or by incineration, or, if allowed by State and local authorities, by burning. If burned, stay out of smoke.
Compressed gas cylinders	Return empty cylinder for reuse (or similar wording)
Aerosol Products	Same as for domestic use products

1/ Manufacturer may replace this phrase with one indicating whether and how fiber drum may be reused.

PESTICIDE DISPOSAL INSTRUCTIONS

The label of all products, except those intended solely for domestic use, must bear explicit instructions about pesticide disposal. The statements listed below contain the exact wording that must appear on the label of these products:

1. The labels of all products, except domestic use, must contain the statement, "Do not contaminate water, food, or feed by storage or disposal."

2. Except those products intended solely for domestic use, the labels of all products that contain active ingredients that are Acute Hazardous Wastes or are assigned to Toxicity Category I on the basis of oral or dermal toxicity, or Toxicity Category I or II on the basis of acute inhalation toxicity must bear the following pesticide disposal statement:

> "Pesticide wastes are acutely hazardous. Improper disposal of excess pesticide, spray mixture, or rinsate is a violation of Federal Law. If these wastes cannot be disposed of by use according to label instructions, contact your State Pesticide or Environmental Control Agency, or the Hazardous Waste representative at the nearest EPA Regional Office for guidance."

3. The labels of all products, except those intended for domestic use, containing active or inert ingredients that are Toxic Hazardous Wastes or meet any of the criteria in 40 CFR 261, Subpart C for a hazardous waste must bear the following pesticide disposal statement:

> "Pesticide wastes are toxic. Improper disposal of excess pesticide, spray mixture, or rinsate is a violation of Federal Law. If these wastes cannot be disposed of by use according to label instructions, contact your State Pesticide or Environmental Control Agency, or the Hazardous Waste representative at the nearest EPA Regional Office for guidance."

4. Labels for all other products, except those intended for domestic use, must bear the following pesticide disposal statement:

> "Wastes resulting from the use of this product may be disposed of on site or at an approved waste disposal facility."

5. Products intended for domestic use only must bear the following disposal statement: "Securely wrap original container in several layers of newspaper and discard in trash."

APPENDIX III - USE INDEX

EPA Compendium of Acceptable Uses

BENDIOCARB

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BENDIOCARB*

TYPE PESTICIDE: Acaricide, Insecticide

FORMULATIONS:

Tech	(95%)
FI	(1%, 76%)
D	(0.5%, 1%)
G	(2.5%, 5%)
WP	(20%, 29.45%, 76%)
WP/D	(1%)
Impr	(0.03125%, 0.38%, 0.45%)
F1C	(2.64 lb/gal)
SC/L	(1.67 lb/gal, 2 lb/gal)
RTU	(1.5 lb/gal, 2 lb/gal)

GENERAL WARNINGS AND LIMITATIONS: Bendiocarb is classifed as a RESTRICTED USE PESTICIDE for all lawn and turf uses based on avian toxicity. The use of the following formulations is limited to professional applicators: G (5%); WP (29.45%, 76%); F1C, SC/L, and RTU. Do not use wettable powder formulation strainers in sprayers with screens finer than 180 mesh. Do not use with a base oil. Do not contaminate feed and food or food preparation surfaces, dishes, kitchen utensils, or food containers. Do not use on or contaminate fruit, vegetables, or other feed or food crops. Keep out of lawn and garden fish pools, lakes, streams, and ponds. Refer to appropriate labeling for ENDANGERED SPECIES RESTRICTIONS.

Bee Caution:

Bendiocarb is highly toxic to bees exposed to direct treatment or residue on blooming crops or weeds. Do not apply bendiocarb or allow it to drift to blooming crops or weeds if bees are visiting the treatment area.

*Ficam
Turcam
2,2-dimethyl-1,3-benzodioxol-4-yl methylcarbamate

BENDIOCARB

	Site and Pest	Dosages and Formulation(s)	Tolerance, Use, Limitations
	TERRESTRIAL NONFOOD CROP		
	(Ornamental Plants)		
/31000AA	Ornamental Herbaceous Plants		
/39000AA	Ornamental Nonflowering Plants		The use of dust formulations on trees is limited to small trees. Do not apply to Cardoon, Espicia, and Gloxinia since phytotoxicity may occur. Bendiocarb has demonstrated excellent plant safety, however, all species and varieties have not been tested. When treating large numbers of plants of a single variety, treat a few plants and observe prior to full-scale application.
/35000AA	Ornamental Trees		
/34000AA	Ornamental Woody Shrubs and Vines		
IRACAUA	Apple aphid	-- (1% D) 000802-00537 or 2.2-2.3 oz/100 gal water (76% WP) 045639-00001 (2.64 lb/gal F1C) 045639-00093 or 9-15 oz/100 gal water (76% WP) 000372-00057 or 0.08 oz/gal water (20% WP)	Foliar application.
IRACCFA	Chrysanthemum aphid		
ITAUAEA	Eastern tent caterpillar		
IRAHADA	Florida wax scale		
IRAHBAA	Hemispherical scale		
ITBDACA	Azalea caterpillar	-- (1% D) or 8.4 oz/100 gal water (76% WP) (2.64 lb/gal F1C) or	

	Site and Pest	Dosages and Formulation(s)	Tolerance, Use, Limitations
	Ornamental Herbaceous Plants cluster (continued)		
		15-30 oz/100 gal water (76% WP) or 0.08 oz/gal water (20% WP)	
IQAXANA ITBKABA INAMDAA INBPAZA IRACATA ITAJADA ITBDAHA ITANAVA IQAXAEA IRAWAOJ IMOAAAA INAMETC ITBDADA	Azalea lace bug Bagworm Elm leaf beetle Japanese beetle Oleander aphid Oleander caterpillar Poplar tentmaker Spring cankerworm Sycamore lacebug Taxus mealybug (adults) Thrips Willow leaf beetle (larvae) Yellownecked caterpillar	-- (1% D) or 8.4 oz/100 gal water (76% WP) (2.64 lb/gal SC/L) or 9-15 oz/100 gal water (76% F1C) or 0.08 oz/gal water (20% WP)	Foliar application.
ITAPAGA INASCYA INASBRA	Azalea leafminer Northern pine weevil Pales weevil	32 oz/100 gal water (76% WP) (2.64 lb/gal F1C) or 15-30 oz/100 gal water (76% F1C)	Foliar application.
INASCSA	Black vine weevil	-- (1% D) or 9.1-16 oz/100 gal water (20%, 76% WP)	Foliar application. Apply in May or June when adults appear. Repeat at 2 week intervals as needed. For severe infestation, apply at more frequent intervals.

Ornamental Herbaceous Plants cluster (continued)

	Site and Pest	Dosages and Formulation(s)	Tolerance, Use, Limitations
		1.52-3.04 oz/ 100 gal water (76% WP) 045639-00059	Soil drench to containerized plants. Apply suspension at the following rates:

Rate of Application	Container Size
0.5 pint	6 inches
1 pint	1 gallon
3 pints	3 gallons
5 pints	5 gallons

Buffer at a pH of 6.5 to 7.2 for best results.

	Site and Pest	Dosages and Formulation(s)	Tolerance, Use, Limitations
INAHABA	Bronze birch borer	16 oz/100 gal water (76% WP) (2.64 lb/gal F1C)	Foliar and bark application. Make 3 applications at 14 day intervals.
IRAHAGA	Brown soft scale	— (1% D) or 4.6 oz/100 gal water (76% WP) (2.64 lb/gal F1C) or 9-15 oz/100 gal water (76% WP) or 0.08 oz/gal water (20% WP)	Foliar application.
IRAWAJA	Citrus mealybug		
ITABAIA	Fall webworm		
IQAXAFA	Hawthorn lace bug		
IRACAWA	Spirea aphid		
IRAKAZA	Tea scale		
IRAKBEA	Camellia scale	15.2-30.4 oz/ 100 gal water (76% WP)	Foliar application.
IMCAAAA	Collembola		
IOABALA	Holly leafminer		
IRAHBJA	Indian wax scale (crawlers)		
IZZZDYA	Ixora scale		
IMAAAFA	Leafrollers		
ILAVBEA	Twospotted spider mite		

	Site and Pest	Dosages and Formulation(s)	Tolerance, Use, Limitations
	Ornamental Herbaceous Plants cluster (continued)		
IRABABF IRABANA IRAEABA	Citrus blackfly (immature) Greenhouse whitefly Pine spittlebug	-- (1% D) or 16 oz/100 gal water (20%, 76% WP) (2.64 lb/gal F1C) or 9-15 oz/100 gal water (76% WP)	Foliar application.
IRAKCAA	Euonymous scale	-- (1% D) or 4.6 oz/100 gal water (76% WP) (2.64 lb/gal F1C) or 15.2-30.4 oz/gal water (76% WP) or 0.08 oz/gal water (20% WP)	Foliar application.
ITCHADA INASDMJ	Mimosa webworm Obscure root weevil (adult)	-- (1% D) or 12 oz/100 gal water (76% WP) (2.64 lb/gal F1C) or 9-15 oz/100 gal (76% WP) or 0.16 oz/gal water (20% WP)	Foliar application. For obscure root weevil, apply in May or June when adults appear. Repeat at 2 week intervals as needed. Repeat at more frequent intervals for severe infestation.

EPA Compendium of Acceptable Uses

BENDIOCARB

Ornamental Herbaceous Plants cluster (continued)

	Site and Pest	Dosages and Formulation(s)	Tolerance, Use, Limitations
ITBUDEA	Nantucket pine tip moth	24 oz/100 gal water (76% WP) (2.64 lb/gal FlC) or 15-30 oz/100 gal water (76% WP)	Foliar application. Apply at the time of moth flight for each generation. Consult local Cooperative Extension Service regarding time of moth flights.
/35000AA	(Ornamental Trees)		
ITAXAIB	Gypsy moth (eggs)	3-4 oz/100 gal water (20%, 76% WP) 045639-00003 (2.64 lb/gal FlC) 045639-00093	Apply to egg masses until saturated. Application can be made up to 3 weeks before egg hatching.
ITAXAIC	Gypsy moth (larvae)	2.25-2.28 oz/100 gal water (20%, 76% WP) or 3 oz/100 gal water (2.64 lb/gal FlC)	Foliar and bark application. Apply at 14 day intervals for heavy infestation.
		1.9-2 lb/100 gal water (20%, 76% WP) (2.64 lb/gal FlC)	Residual trunk application. Apply when larvae are large (1 to 2.5 inches, 4th to 6th instars) and are mobile and seeking resting places. At this stage a foliar application is impractical. Apply to tree trunks until fully saturated, making sure to treat cracks and crevices. A harboring consisting of burlap or tape bands around trunk will help keep larvae on the treated surface. Apply at 14 day intervals in heavily infested areas.

BENDIOCARB

	Site and Pest	Dosages and Formulation(s)	Tolerance, Use, Limitations
/033008AA	Ornamental Lawns and Turf		
INBPAWC	Annual white grub (larvae)	2-4 lb/A or 0.225-0.475 lb/5,000 sq.ft (2.5%, 5% G) 045369-00099 or 0.23-0.5 lb/5,000 sq.ft (20%, 76% WP) 045369-00001 (2.64 lb/gal FlC) 045639-00043	RESTRICTED USE PESTICIDE. Broadcast application. Apply when pests become evident. Control of grubs (larvae) is best when they are still small; therefore late summer treatments are preferable to spring treatments. Apply wettable powders in adequate water to assure thorough coverage. After application (all formulations), irrigate thoroughly with 0.5 to 0.75 inches of water.
INASDUC	Billbugs (larvae)		
INBPBUC	Black turfgrass (Ataenius) (larvae)		
INBPAGC	European chafer (larvae)		
INBPALC	Green June beetle (larvae)		
INBPAZC	Japanese beetle (larvae)		
IVAIAAA	Mole crickets		
INBPANC	Northern masked chafer (larvae)		
IQALAEA	Chinch bug	1-2 lb/A or 0.1125-0.2375 lb/5,000 sq.ft (2.5%, 5% G) 045639-00100 or 0.12-0.25 lb/5,000 sq.ft (20%, 76% WP) (2.64 lb/gal FlC)	Broadcast application. Apply when pests are evident. Use adequate quantity of water to thoroughly moisten grass and thatch.
IRAFAAA	Leafhoppers		
ITBMABA	Sod webworms		

BENDIOCARB

(Noncrop, Wide Area, and General Indoor/Outdoor Treatments)

General Warnings and Limitations: Do not apply bendiocarb in campgrounds or communities located in forest areas. Do not apply within 320 feet of any body of water.

	Site and Pest	Dosages and Formulation(s)	Tolerance, Use, Limitations
/680020A	Residential Areas		Use limited to public health officials, trained personnel of mosquito control organizations and pest control operators.
IDAMAAJ	Mosquitoes (adults)	0.0026-0.011 lb/A (1.67, 2 lb/gal SC/L) 045639-00067	Outdoor treatment. Ultra low volume, non-thermal (cold fog), ground application. The maximum droplet size should not exceed 30 microns with the length median diameter not in excess of 20 microns. Refer to labeling instructions for proper calibration of equipment. The optimum time for application is at dusk, night and dawn when wind speeds are between 3 and 8 miles per hour. A suitable temperature inversion is desirable. Most daylight conditions are unsuitable because of temperature thermals and variable air movements. Application routes. The application vehicle should be driven across the prevailing wind direction starting at the downwind side of the treatment area and gradually moving upwind at approximately 330 foot (swath width) intervals. Avoid application routes which would force the driver to pass into the insecticide spray. Diluents. The 1.67 pound per gallon soluble concentrate/liquid formulation may be diluted 1:1 with HAN (trademark for a high aromatic solvent, boiling range 355 to 535 F). The 2 pound per gallon soluble concentrate/liquid formulation may be diluted up to 1:3 proportions with any suitable low viscosity white mineral oil.

	Site and Pest	Dosages and Formulation(s)	Tolerance, Use, Limitations
	Residential Areas (continued)		
		0.005-0.01 lb/A (1.5, 2 lb/gal RTU)	Use limited to CA and TX in conjunction with SLN CA8300041, CA840205, TX810027, and TX840019. Refer to outdoor treatment use paragraph for use information and limitations.
/680040A	Rodent Burrows of Plague Reservoir Host Animals and Adjacent Areas (campsites)		Use limited to CA in conjunction with SLN CA840190. Use must be under the supervision of the county agricultural commissioner, state, county or local vector control or public health officials. Applicators must possess a restricted materials permit.
IMNAAAA	Fleas	0.005-0.01 oz/rodent burrow (1% D)	Burrow treatment. Apply by band or power dusters. Treat for a minimum of 5 days for light rodent populations and 10 days for dense rodent populations. Repeat as needed.
		0.04 oz/bait station (1% D)	Bait station. Place a minimum of 1 bait-dust station per campsite. Treat for a minimum of 5 days for light rodent populations and 10 days for dense rodent populations. Repeat as needed.

BENDIOCARB

	Site and Pest	Dosages and Formulation(s)	Tolerance, Use, Limitations
	GREENHOUSE NONFOOD CROP		
	(Ornamental Plants)		
/31000CA	Ornamental Herbaceous Plants (Greenhouse/Interior Plantscape)		Apply to glisten. For interior plantscapes, apply when there is nobody present and allow nobody near the treated plants until the spray is completely dry. Do not apply to Cordoon, Espicia, and Gloxinia since phytotoxicity may occur. Bendiocarb has demonstrated excellent plant safety, however, all species and varieties have not been tested. When treating large numbers of plants of a single variety, treat a few plants and observe prior to full-scale application.
/39000CA	Ornamental Nonflowering Plants (Greenhouse/Interior Plantscape)		
/35000CA	Ornamental Trees (Greenhouse/Interior Plantscape)		
/34000CA	Ornamental Woody Shrubs and Vines (Greenhouse/Interior Plantscape)		
IRACAVA	Apple aphid	2.3 oz/100 gal water (76% WP) 045639-00001 or 9-15 oz/100 gal water (76% WP) 000372-00057	Foliar application to greenhouse and interior plantscape ornamentals.
IRACCFA	Chrysanthemum aphid		
ITAUAEA	Eastern tent caterpillar		
IRAHADA	Florida wax scale		
IRAHBAA	Hemispherical scale		
ITBDACA	Azalea caterpillar	8.4 oz/100 gal waer (76% WP) or 15-30 oz/100 gal water (76% WP)	

Ornamental Herbaceous Plants (greenhouse/interior plantscape) cluster (continued)

	Site and Pest	Dosages and Formulation(s)	Tolerance, Use, Limitations
IZAXANA	Azalea lace bug	8.4 oz/100 gal water (76% WP) or 9-15 oz/100 gal water (76% WP)	Foliar application.
ITBKABA	Bagworm		
INAMDAA	Elm leaf beetle		
INBPAZA	Japanese beetle		
IRACATA	Oleander aphid		
ITAJADA	Oleander caterpillar		
ITBDAHA	Poplar tentmaker		
ITANAVA	Spring cankerworm		
IQAXAEA	Sycamore lace bug		
IRAWAOJ	Taxus mealybug (adults)		
IMOAAAA	Thrips		
INAMETC	Willow leaf beetle (larvae)		
ITBDADA	Yellow necked caterpillar		
ITAPAGA	Azalea leafminer	32 oz/100 gal water (76% WP) or 15-30 oz/100 gal water (76% FlC)	Foliar application.
INASCYA	Northern pine weevil		
INASBRA	Pales weevil		
INASCSA	Black vine weevil	9.1-16 oz/100 gal water (76% WP)	Foliar application. Apply in May or June when adults appear. Repeat at 2 week intervals as needed. For severe infestations, apply at more frequent intervals.

	Site and Pest	Dosages and Formulation(s)	Tolerance, Use, Limitations
	Ornamental Herbaceous Plants (greenhouse/interior plantscape) cluster (continued)		
		1.52-3.04 oz/ 100 gal water (76% WP) 045639-00059	Soil drench to containerized plants. Apply suspension at the following rates. Rate of Application Container Size 0.5 pint 6 inches 1 pint 1 gallon 3 pints 3 gallons 5 pints 5 gallons Buffer at a pH of 6.5 to 7.2 for best results.
INAHABA	Bronze birch borer	16 oz/100 gal water (76% WP)	Foliar and bark application. Make 3 applications at 14 day intervals.
IRAHAGA IRAWAJA ITABAIA IQAXAFA IRACAWA IRAKAZA	Brown soft scale Citrus mealbug Fall webworm Hawthorn lace bug Spirea aphid Tea scale	4.6 oz/100 gal water (76% WP) or 9-15 oz/100 gal water (76% WP)	Foliar application.
IRAKBEA IMCAAAA IOABALA IRAHBJG IZZZDYA IMAAAEA ILAVBEA	Camellia scale Collembola Holly leafminer Indian wax scale (crawlers) Ixora scale Leafrollers Twospotted spider mite	15.2-30.4 oz/ 100 gal water (76% WP)	Foliar application.
IRABABF IRABANA IRAEABA	Citrus blackfly (immature) Greenhouse whitefly Pine spittlebug	16 oz/100 gal water (76% WP) or 9-15 oz/100 gal water (76% WP)	Foliar application.

Ornamental Herbaceous Plants (greenhouse/interior plantscape) cluster (continued)

	Site and Pest	Dosages and Formulation(s)	Tolerance, Use, Limitations
IRAKCAA	Euonymous scale	4.6 oz/100 gal water (76% WP) or 15.2-30.4 oz/ gal water (76% WP)	Foliar application.
ITCHADA INASDMJ	Mimosa webworm Obscure root weevil (adult)	12 oz/100 gal water (76% WP) or 9-15 oz/100 gal water (76% WP)	Foliar application. For obscure root weevil, apply in May or June when adults appear. Repeat at 2 week intervals as needed. Repeat at more frequent intervals for severe infestation.
ITBUDEA	Nantucket pine tip moth	24 oz/100 gal water (76% WP) or 15-30 oz/100 gal water (76% WP)	Foliar application. Apply at the time of moth flight for each generation. Consult local Cooperative Extension Service regarding time of moth flights.

Also refer to INDOOR, (Agricultural Premises and Equipment), Greenhouses for additional use information.

BENDIOCARB

DOMESTIC OUTDOOR

(Domestic Dwellings)

/63003OA **Domestic Dwellings** (Outdoor)
/63001QA

	Site and Pest	Dosages and Formulation(s)	Tolerance, Use, Limitations
ISASAAA	Ants	0.037-0.073 oz/100 sq.ft (0.5%, 1% D) (1% WP/D) 045639-00003 or 0.25-0.3% suspension (20%, 76% WP) 045639-00001 [MAI] 0.25-0.3% suspension (29.45% WP)	Outdoor residual treatment. Apply to surfaces of buildings, porches, screens, window frames, eaves, patios, garages, and other areas where pests congregate. Apply to a band of soil and vegetation 6 to 10 feet wide around and adjacent to the building. Thoroughly treat ant hills, and bee and wasp nests in the band area. Also treat the building foundation to a height of 2 to 3 feet where pests are active and may find entrace into buildings. May be formulated with pyrethrins and piperonyl butoxide.
ISAAACA	Bees		
ILAMAQA	Brown dog tick		
IJBAAAA	Centipedes		
IVAAABA	Cockroaches		
IVAHAAA	Crickets		
IMDAAAA	Earwigs		
IMPBABA	Firebrat		
IMNAAAA	Fleas		
INAKAAA	Ground beetles		
IJCAAAA	Millipedes		
IJEBAAA	Scorpions		
IMPBACA	Silverfish		
IIFAAEA	Sowbugs (Pillbugs)		
IKAAAAA	Spiders		
ISAAADA	Wasps		
		0.036-0.072 oz/100 sq.ft (2.5%, 5% G) 045639-00100	Perimeter treatment. Apply to a band of soil 6 to 10 feet wide around and adjacent to the building.
		0.05% suspension (76% WP) 045639-00001 or 1.9-3.8 oz/5,000 sq.ft (76% WP) 045639-00059 (2.64 lb/gal FlC) 045639-00093 [MAI] 0.05% suspension (29.45% WP)	Yard treatment. Apply as a coarse spray to thoroughly wet treated areas. May be formulated with pyrethrins and piperonyl butoxide.

BENDIOCARB

	Site and Pest	Dosages and Formulation(s)	Tolerance, Use, Limitations
	Domestic Dwellings (Outdoor) (continued)		
ISAAACA ISAAADA	Bees Wasps	-- (0.5%, 1% D) (1% WP/D) 045639-00003 or 0.25-0.3% suspension (20%, 76% WP) 045639-00001 [MAI] 0.25-0.3% suspension (29.45% WP)	Application to bee and wasp nests. Apply at night when bees and wasps are less active and have returned to the nest. Wear protective clothing to avoid stings. For ground and aerial nests, carefully treat nest entrance and surrounding areas where insects alight. Repeat applications in 1 or 2 days if wasp activity continues. Check nests carefully 1 or 2 days after treatment to ensure complete kill. Remove and destroy nest to prevent emergence of pupating insects. If removal is not feasible, retreat the nest. For dusts, use hand or power duster, or other suitable means, with extension tubers, if necessary. Do not treat overhead nests with dust formulations. May be formulated with pyrethrins and piperonyl butoxide.
		-- (1% D) (1% WP/D)	Application to bee and wasp nests in wall voids. Locate nest by listening with ear against wall. Drill a hole in the area, treat, and reseal hole.

	Site and Pest	Dosages and Formulation(s)	Tolerance, Use, Limitations
	Domestic Dwellings (Outdoor) (continued)		
ISASBNA	Fire ant complex	0.07 oz/2 gal water/8 in. (or larger) diameter mound (1% WP/D) 045639-00003 or 0.06-0.08 oz/2 gal water/8 in. (or larger) diameter mound (20%, 76% WP) 045639-00001 (2.64 lb/gal FlC) 045639-00093	Mound treatment. Apply a small amount of the suspension around the perimeter of the mound. Apply the remaining volume directly on the mound so as to penetrate insect galleries, using 2 gallons of suspension on mounds 8 inches or larger in diameter. Less suspension can be used on smaller mounds; however, thorough penetration of the insect galleries must be achieved. A second application may be necessary if complete control is not obtained. Do not disturb the mound prior to application. If possible, make applications after a recent rainfall. Applications may not be as effective during hot, dry periods. If possible, treat all colonies in the vicinity. Also, treat colonies which have not yet constructed a mound.
		0.0067-0.0133 oz/mound (1% WP/D) 009404-00068	Mound treatment. Apply one-half of the specified dosage (0.0033 to 0.0067 ounce) as a dust over a 9 square foot (3 feet by 3 feet) area surrounding the center of the mound. Apply the remaining 0.0033 to 0.0067 ounce directly to the center area where the ants enter the ground. Apply gently so as not to disturb the insects. Apply to new mounds as they appear.
IQAMAAJ	Mosquitoes (adult)	1% suspension (76% WP) 045639-00001	Outdoor residual treatment. Apply around doors, windows, screens, and other places where mosquitoes may enter the premises. Mosquitoes coming to rest on treated surfaces will be killed. Repeat as needed.

EPA Index to Pesticide Chemicals

BENDIOCARB

	Site and Pest	Dosages and Formulation(s)	Tolerance, Use, Limitations
	AQUATIC NONFOOD		
	(Aquatic Sites)		
/65026MB	Sewers		
IVAAABA	Cockroaches	0.07-0.14 oz/manhole (1% WP/D) 045639-00003	Apply to sewers through manhole openings using a power duster. Use lower rate for knockdown and short term population suppression and higher rate for longer (30 days) residual control.

INDOOR

General Warnings and Limitations: Do not apply bendiocarb to humans and animals, clothing or bedding. Do not contaminate feed or food products or food preparation surfaces, dishes, kitchen utensils, and food containers.

	Site and Pest	Dosages and Formulation(s)	Tolerance, Use, Limitations
	(Animals and Their Man-Made Premises)		
/54000JA	Pet Premises		
ILAMAQA IMNAAAA	Brown dog tick Fleas	0.0033-0.0067 oz/sq.yd (0.5%, 1% D) (1% WP/D) 045639-00003 or 1 gal 0.25-0.3% suspension/800 sq.ft (20%, 76% WP) 045639-00001	Enclosed premise treatment. Apply to pet bedding and resting quarters, nearby cracks and crevices, floor coverings and under their edges, and other areas where the pest may be present. Old bedding of pets should be removed and replaced with clean fresh bedding after treatment.

BENDIOCARB

	Site and Pest	Dosages and Formulation(s)	Tolerance, Use, Limitations
	(Agricultural Premises and Equipment)		
/61015JA /31000AA /39000AA /35000AA /34000AA	Greenhouses		
ISASAAA	Ants	0.25% suspension (76% WP) 045639-00001 [MAI] 0.25% suspension (29.45% WP) 000334-00545 045639-00066	Outdoor residual treatment. Apply to surfaces of buildings, screens, window frames, eaves, patios, garages, and other areas where pests congregate. Apply to a band of soil around and adjacent to the building. Thoroughly treat ant hills and bee and wasp nests in the band area. Also treat the building foundation to a height of 2 to 3 feet where pests are active and may find entrance into buildings. May be formulated with pyrethrins and piperonyl butoxide.
ISAAACA	Bees		
ILAMAQA	Brown dog tick		
IJBAAAA	Centipedes		
IVAAABA	Cockroaches		
IVAHAAA	Crickets		
IMDAAAA	Earwigs		
IMPBABA	Firebrat		
IMNAAAA	Fleas		
INAKAAA	Ground beetles		
IJCAAAA	Millipedes		
IJEBAAA	Scorpions		
IMPBACA	Silverfish		
IIFAAEA	Sowbugs (Pillbugs)		
IKAAAAA	Spiders		
ISAAADA	Wasps		
IJBAAAA	Centipedes	0.25% suspension (76% WP) [MAI] 0.25% suspension (29.45% WP)	Indoor residual treatment. Apply around doors and windows and to other places where pests may enter the premises. Also treat baseboards, storage areas, and other locations where pests are found. May be formulated with pyrethrins and piperonyl butoxide.
IMDAAAA	Earwigs		
INAKAAA	Ground beetles		
IJCAAAA	Millipedes		
IJEBAAA	Scorpions		
IIFAAEA	Sowbugs		

	Site and Pest	Dosages and Formulation(s)	Tolerance, Use, Limitations

(Domestic Dwellings)

General Warnings and Limitations: Do not permit children or pets near treated surfaces until spray has dried.

	Site and Pest	Dosages and Formulation(s)	Tolerance, Use, Limitations
/63001QA /70028JC /77000JC /72000JC /73000JC /71000JC /74000JC /71008JC /71009JC /70010JC /70020JC	Domestic Dwellings (Indoor)		
ISASAAA IVAAABA IVAHAAA IMPBABA IMPBACA	Ants Cockroaches Crickets Firebrat Silverfish	0.0033-0.0067 oz/sq.yd (0.5%, 1% D) (1% WP/D) 045639-00003 or 0.125-0.3% suspension (20%, 76% WP) 045639-00001 [MAI] 0.125-0.3% suspension (29.45% WP)	Indoor residual treatment. Apply as a dust or coarse, low pressure spot or crack and crevice treatment to areas where pests hide such as: baseboards, storage areas, and closets; around water pipes, doors, and windows; behind and under refrigerators, cabinets, sinks, and stoves; the underside of shelves and drawers; and similar areas. For ants also apply to ant trails and other places where ants enter the premises. For wettable powder formulations use lower rate for maintenance applications when pest infestation is low. For this rate, sites should be inspected and treated at least every 30 days. Apply higher rates when pest infestation is high. Apply the 0.5 percent rate when a quick reduction of a heavy cockroach infestation is required. May be formulated with pyrethrins and piperonyl butoxide.
IVAHABA	Cockroaches	0.45-0.5% suspension (20%, 76% WP) [MAI] 0.45-0.5% suspension (29.45% WP)	
ISASAAA	Ants	0.15 g/trap (0.03125% Impr) 000506-00143	Ant trap. Press in semiperforations on side of trap. Place trap under sinks, in closets, and in other areas where ants are numerous. Ants enter trap and carry bendiocarb treated bait back to nest.

BENDIOCARB

Domestic Dwellings (Indoor) (continued)

	Site and Pest	Dosages and Formulation(s)	Tolerance, Use, Limitations
ISASAAA IVAAABA IMPBACA	Ants Cockroaches Silverfish	shelf paper (0.38%, 0.45% Impr) 045639-00058	Impregnated shelf and drawer paper. Use to line drawers and cabinets. Use in and around garbage storage areas, broom closets, and under sinks. Protect cottons, linens, and valuable documents by covering with impregnated paper. Clean or sun or brush garments before treatment. Repeat application at 6 month intervals. Exposed areas may require more frequent application. Do not place unwrapped or wrapped food or food utensils on impregnated paper.
INATAHA INATADA INATAGA	Black carpet beetle Furniture carpet beetle Varied carpet beetle	0.0033-0.0067 oz/sq.yd (1% WP/D) 045639-00003 or 0.25-0.5% suspension (76% WP) 045639-00001 [MAI] 0.25-0.5% suspension (29.45% WP)	Indoor residual treatment. Apply as a spot application on and under edges of floor coverings, under rugs and furniture, and in closets or other localities where the pest is found. For the wettable powder formulation, entire rugs may be treated. The 0.25 percent rate is for regular treatments. The 0.5 percent rate is recommended where it is desired to obtain a longer period of control of the pest in areas where access is difficult or where deposits will not be quickly removed by cleanings. May be formulated with pyrethrins and piperonyl butoxide.
ILAMAQA INMAAAA	Brown dog tick Fleas	0.0033-0.0067 oz/sq.yd (0.5%, 1% D) (1% WP/D) 045639-00003 or 1 gal 0.25-0.3% suspension/800 sq.ft (20%, 76% WP) or	Indoor residual treatment. Apply to pet beds and resting quarters, nearby cracks and crevices, rugs and floor coverings and under their edges, between and under cushions of upholstered furniture, and other areas where the pest may be treated. Apply lightly to rugs and furniture. Old bedding of pets should be removed and replaced with clean fresh bedding after treatment. May be formulated with pyrethrins and piperonyl butoxide.

BENDIOCARB

Domestic Dwellings (Indoor) (continued)

	Site and Pest	Dosages and Formulation(s)	Tolerance, Use, Limitations
		[MAI] 1 gal 0.25-0.3% suspension/800 sq. ft (29.45% WP)	
IJBAAAA	Centipedes	0.25% suspension (76% WP) or 0.0033-0.0067 oz/sq.yd (0.5%, 1% D) (1% WP/D) 045639-00003	Indoor residual treatment. Apply around doors and windows and to other places where pests may enter the premises. Also treat baseboards, storage areas, and other locations where pests are found. May be formulated with pyrethrins and piperonyl butoxide.
IMDAAAA	Earwigs		
INAKAAA	Ground beetles		
IJCAAAA	Millipedes		
IJEBAAA	Scorpions		
IIFAAEA	Sowbugs		
		[MAI] 0.25% suspension (29.45% WP)	
INBUATA	Confused flour beetle	0.0033-0.0067 oz/sq.yd (1% WP/D) 045639-00003 or 0.25% suspension (76% WP) [MAI] 0.25% suspension (29.45% WP)	Indoor residual treatment. Remove all foodstuffs, shelving paper, and utensils from the area to be treated. Treat exposed stages or the pest. Apply to cupboards and shelves and allow treated surfaces to dry. Cover with shelving paper prior to replacement of food and utensils. All infested foodstuffs should be destroyed. May be formulated with pyrethrins and piperonyl butoxide.
INABAEA	Drugstore beetle		
INAEAEA	Lesser grain borer		
INARAFA	Merchant grain beetle		
INBUASA	Red flour beetle		
INASDRA	Rice weevil		
INARADA	Rusty grain beetle		
INARAGA	Sawtoothed grain beetle		
INBOAAA	Spider beetles		
ITBMBEA	Tobacco moth		
IKAAAAA	Spiders (including black widow spiders)	0.25% suspension (76% WP) or 0.0033-0.0067 oz/sq.yd (0.5%, 1% D) (1% WP/D)	Indoor residual treatment. Apply to infested baseboards, window and door frames, corners, pipes, storage areas, attics, and under eaves. Make spot applications to other areas over which pests may crawl. May be formulated with pyrethrins and piperonyl butoxide.

	Site and Pest	Dosages and Formulation(s)	Tolerance, Use, Limitations

Domestic Dwellings (Indoor) (continued)

	Site and Pest	Dosages and Formulation(s)	Tolerance, Use, Limitations
		[MAI] 0.25% suspension (29.45% WP)	
ITBSAFA	(Webbing clothes moth)	0.5% suspension (76% WP) or -- (1% WP/D) [MAI] 0.5% suspension (29.45% WP)	Indoor residual treatment. Apply the spray as a spot application or the wettable powder/dust formulation as a crack and crevice application in closets and other storage areas where the pest may be found. This treatment is an adjunct treatment and will not control webbing clothes moth larvae already on the clothes. May be formulated with pyrethrins and piperonyl butoxide.

Refer to DOMESTIC INDOOR, (Household), Domestic Dwellings (Outdoor) for additional information.

(Wood or Wood Structure Protection Treatment)

/64002NB **Firewood Piles**

	Site and Pest	Dosages and Formulation(s)	Tolerance, Use, Limitations
ISASAFA	Carpenter ants	0.36-0.72 oz/ 1,000 sq.ft (2.5%, 5% G)	Broadcast application around existing and imminent firewood piles. Apply to area where firewood is to be stacked. For existing firewood piles, apply a 3 to 6 foot band around the woodpile. If the rows of wood are stacked so there is about 2 inches between them, apply granules between rows.

/64000NB **Terrestrial Structures**

	Site and Pest	Dosages and Formulation(s)	Tolerance, Use, Limitations
ISASAFA	Carpenter ants	0.0033-0.0067 oz/sq.yd (0.5%, 1% D) (1% WP/D) 045639-00003 or 0.25% suspension (76% WP) 045639-00001 or	Outdoor residual treatment. Apply to ant trails, around doors and windows, and other places where ants enter the premises. Where possible apply directly to the ant nest and surrounding areas or to infested wood through existing openings or newly drilled small holes. May be formulated with pyrethrins or piperonyl butoxide.

Site and Pest	Dosages and Formulation(s)	Tolerance, Use, Limitations
Terrestrial Structures (continued)		
	[MAI] 0.25% suspension (29.45% WP)	
IMGAAAA (Termites)	-- (1% WP/D) or 0.25% suspension (76% WP) [MAI] 0.25% suspension (29.45% WP)	Apply to voids or channels in damaged wood members of a structure, or to cracks, spaces, or bearing joints between wooden members of a structure or between such members and the foundation in locations vulnerable to termite attack. Drilling may be necessary prior to application to voids cracks or joint spaces in vulnerable locations and to channeled sections of wood but it must be recognized that such drilling and treating of a timber in place may not result in complete coverage of infested and vulnerable voids or galleries. All treatment holes drilled in construction elements in commonly occupied areas of structures must be securely plugged. The purpose of such application is to kill workers or winged reproductive forms which may be present in the treated channels and spaces at the time of treatment and to impart a temporary resistance at these places to termite attack which may aid, in some part, in the prevention of immediate reinfestation by termites. Such applications are not a substitute for mechanical alteration, soil treatment or foundation treatment but merely a supplement, particularly where use of other insecticides may pose an odor problem. Do not apply until location of heat or air conditioning ducts, vents, water and sewer lines and electrical conduits are known and identified. Extreme caution must be taken to avoid contamination of these structural elements and airways.

	Site and Pest	Dosages and Formulation(s)	Tolerance, Use, Limitations
	Terrestrial Structures (continued)		
			May be formulated with pyrethrins and piperonyl butoxide.
	(Commercial and Industrial Uses)		
/70030JB	Aircraft (Edible Product Areas)		
/70028JB	Buses (Edible Product Areas)		Food Additive Regulation (FAR) (21 CFR 193.152) Feed Additive Regulation (FEAR) (21 CFR 561.141) Application to edible product areas of food handling establishments is limited to spot and crack and crevice applications only. No individual spot application will exceed 2 square feet.
/77000JB	Commercial, Industrial, and Institutional Areas (Edible Product Areas)		
/72000JB	Eating Establishments (Edible Product Areas)		
/73000JB	Food Marketing, Storage and Distribution Facilities (Edible Product Areas)		
/71000JB	Food Processing, Handling, and Storage Plants (Edible Product Areas)		
/74000JB	Hospitals and Nursing Homes (Edible Product Areas)		
/70010JB	Railroad Cars (Edible Product Areas)		
/70020JB	Shipholds (Edible Product Areas)		
/70010JB	Trucks (Edible Product Areas)		
ISASAAA	Ants	0.0033-0.0067 oz/sq.yd (0.5%, 1% D) (1% WP/D) 045639-00003	Residual spot treatment. Apply as a dust or a coarse, low pressure spot treatment to areas where pests hide such as: baseboards, storage areas, and closets; around water pipes, doors, and windows; behind and under refrigerators, cabinets, sinks, and stoves; the underside of shelves and drawers; and similar areas. For ants also apply to ant trails and other places where ants enter the premises. OR Residual crack and crevice treatment. Apply directly into cracks and crevices using equipment capable of delivering a pinstream of spray or dust in points between different elements of construction, between equipment and floors, openings leading to voids and hollow spaces in walls,
IVAAABA	Cockroaches		
IVAHAAA	Crickets		
IMPBABA	Firebrat		
IMPBACA	Silverfish		
IVAAABA	Cockroaches	0.125-0.25% suspension (76% WP) 045639-00001 [MAI] 0.125-0.25% suspension (29.45% WP)	
IVAAABA	Cockroaches	0.5% suspension (76% WP) 045639-00001 or	

Aircraft (Edible Product Areas) cluster (continued)

	Site and Pest	Dosages and Formulation(s)	Tolerance, Use, Limitations
		[MAI] 0.5% suspension (29.45% WP)	ment legs and bases where pests hide. For both treatments. For wettable powder formulations, apply the 0.125 percent rate for maintenance applications when pest infestation is low. For this rate, sites should be inspected and treated at least every 30 days. Apply the 0.25 percent rate when pest infestation is high. Labeling claims control for 30 to 60 days. Apply the 0.5 percent rate when a quick reduction of a heavy cockroach infestation is required. May be formulated with pyrethrins and piperonyl butoxide.
INBUATA	Confused flour beetle	0.0033-0.0067 oz/sq.yd (1% WP/D) or 0.25% suspension (76% WP) [MAI] 0.25% suspension (29.45% WP)	Residual spot treatment. Treat exposed stages. Remove all foodstuffs, shelving paper, and utensils from area to be treated. Apply spray to cupboards and shelves and allow to dry. Cover with shelving paper prior to replacement of food and utensils. Infested foodstuffs should be destroyed. May be formulated with pyrethrins and piperonyl butoxide.
INABAEA	Drugstore beetle		
INAEAEA	Lesser grain borer		
INARAFA	Merchant grain beetle		
INBUASA	Red flour beetle		
INASDRA	Rice weevil		
INARADA	Rusty grain beetle		
INARAGA	Sawtoothed grain beetle		
INBOAAA	Spider beetles		
ITBMBEA	Tobacco moth		
IKAAAAA	Spiders	0.0033-0.0067 oz/sq.yd (1% D) (1% WP/D) or 0.25% suspension (76% WP) or	Residual spot treatment. Apply as a coarse, low pressure spot treatment to areas where pests hide such as: baseboards, storage areas, and closets; around water pipes, doors, and windows; behind and under refrigerators, cabinets, sinks, and stoves; the underside of shelves and drawers; and similar areas. OR

	Site and Pest	Dosages and Formulation(s)	Tolerance, Use, Limitations
	Aircraft (Edible Product Areas) cluster (continued)		
		[MAI] 0.25% suspension (29.45% WP)	Residual crack and crevice treatment. Apply the spray directly into cracks and crevices using equipment capable of delivering a pinstream in points between different elements of construction, between equipment and floors, openings leading to voids and hollow spaces in walls, equipment legs and bases where pests hide. May be formulated with pyrethrins and piperonyl butoxide.
ITBSAFA	Webbing clothes moth	0.0033-0.0067 oz/sq.yd (1% WP/D) or 0.5% suspension (76% WP) [MAI] 0.5% suspension (29.45% WP)	Residual spot treatment. Apply in closets and other storage areas where the pest is found. This treatment is an adjunct treatment and will not control webbing clothes moth larvae already on the clothes. May be formulated with pyrethrins and piperonyl butoxide.
/70030JB	(Aircraft)		
INBPAZA	Japanese beetle	0.0033-0.0067 oz/sq.yd (1% WP/D) or 0.25% suspension (76% WP)	Residual spot treatment. Apply to areas where the pest may enter or be found such as carpets, under seats, storage areas, closets, around doors, behind and under galley equipment, in cargo holds and wheel wells.
/70001QA	Aircraft (Areas other than Edible Product Areas)		
INPBAZA	Japanese beetle	0.25% suspension (76% WP) 045639-00001 or 0.0033-0.0067 oz/sq.yd (1% WP/D) 045639-00003	Residual treatment. Apply to areas where the pest may enter or be found such as carpets, under seats, storage areas, closets, around doors, in cargo holds and wheel wells.

	Site and Pest	Dosages and Formulation(s)	Tolerance, Use, Limitations
/70002JC	Buses (Areas other than Edible Product Areas)		
/77000JC	Commercial, Industrial, and Institutional Areas (Areas other than Edible Product Areas)		
/72000JC	Eating Establishments (Areas other than Edible Product Areas)		
/73000JC	Food Marketing, Storage, and Distribution Facilities (Areas other than Edible Product Areas)		
/71000JC	Food Processing, Handling, and Storage Plants (Areas other than Edible Product Areas)		
/74000JC	Hospitals and Nursing Homes (Areas other than Edible Product Areas)		
/71008JC	Meat Processing Plants (Areas other than Edible Product Areas)		
/71009JC	Poultry Processing Plants (Areas other than Edible Product Areas)		
/70005JC	Railroad Cars (Areas other than Edible Product Areas)		
/70034JC	Shipholds (Areas other than Edible Product Areas)		
/70006JC	Trucks (Areas other than Edible Product Areas)		

Refer to INDOOR, (Domestic Dwellings), Domestic Dwellings (Indoor), for use information.

BENDIOCARB

Listing of Registered Pesticide Products by Formulation

&095.0001 95% technical chemical
bendiocarb (105201)
045639-00006

&001.0002 1% formulation intermediate
bendiocarb (105201)
045639-00009

&076.0002 76% formulation intermediate
bendiocarb (105201)
045639-00002

&000.0503 0.5% dust
bendiocarb (105201)
007401-00346

&001.0003 1% dust
bendiocarb (105201)
000004-00302 000802-00537 000869-00176 007401-00325
008590-00577*
*suspended

(045639-00003) CA840190

&002.5004 2.5% granular
bendiocarb (105201)
045639-00100

&005.0004 5% granular
bendiocarb (105201)
045639-00099

&020.0006 20% wettable powder
bendiocarb (105201)
000070-00260 000407-00418 045639-00064

&029.4506 29.45% wettable powder
bendiocarb (105201), petroleum distillate (063503), piperonyl butoxide (067501) plus pyrethrins (069001)
000334-00545 045639-00066

&076.0006 76% wettable powder
bendiocarb (105201)
000372-00057 045639-00001 045639-00059

&001.0007 1% wettable powder/dust
bendiocarb (105201)
000070-00270 000192-00148 000407-00425 000557-01949
000904-00427 006720-00284 009404-00068 010370-00156
033955-00555 045639-00003 045639-00010

Listing of Registered Pesticide Products by Formulation (continued)

&000.0310 0.03125% impregnated materials
bendiocarb (105201)
000506-00143

&000.3810 0.38% impregnated materials
bendiocarb (105201)
054542-00003

&000.4510 0.45% impregnated materials
bendiocarb (105201)
045639-00058 054542-00002

&102.6414 2.64 lb/gal flowable concentrate
bendiocarb (105201)
045639-00093

&102.0015 1.67 lb/gal soluble concentrate/liquid
bendiocarb (105201)
045639-00102

&018.8715 2 lb/gal soluble concentrate/liquid
bendiocarb (105201)
045639-00067

&101.5016 1.5 lb/gal liquid-ready to use
bendiocarb (105201)
(045639-00006) CA840205 TX840019

&102.0016 2 lb/gal liquid-ready to use
bendiocarb (105201)
(045639-00067) CA830041 TX810027

EPA Index to Pesticide Chemicals

BENDIOCARB

Appendix A-1

Listing of Active Ingredient(s) Found in Combination with the Report Chemical

Chemical Code	Common Name (source)	EPA Acceptable Common/Chemical Name
063503	petroleum distillate	--
067501	piperonyl butoxide	--
069001	pyrethrins	--

-- Use Common Name

EPA Index to Pesticide Chemicals

BENDIOCARB

Auxiliary Documentation

1. Wettable Powder/Dust Formulations (1%) are identical to the 1% dust formulation in every respect except one. The use of the WP/D on fire ants recommends making a suspension in water. For this reason I am listing the WP/D formulation immediately following the dusts in the dosage column and am using a WP/D formulation as the representative product for all dusts and WP/D's.

2. Carpet beetle claims were not included in edible product areas portion of index entry because use directions required treatment of entire rugs, which is not permitted in edible product areas.

3. Granular Formulations (045639-99, 100) labeling claims many ornamental sites but only give pests and use directions for lawns, turf, and outdoor perimeter treatments. I have chosen to leave the ornamental claims out of the index entry.

4. 45639-102 labeling gives formulation as 18.87%. Since the specific gravity of the product is 8.83 lb/gal, I calculated the weight of the active ingredient to be 1.67 lb/gal which is how I reflected it in this index entry. At reregistration the manufacturer should be requested to specify the pounds of active ingredient/gallon on the label.

5. 372-57 lists ornamental dosages in two broad ranges rather than 7 specific dosages as the majority of the labeling. With reservations, I have included these dosages in the "Index" but have kept them separate to avoid confusion. I suggest that we instruct the company to use more specific dosages at reregistration.

APPENDIX IV - BIBLIOGRAPHY

BIBGUIDE-1

GUIDE TO USE OF THIS BIBLIOGRAPHY

1. CONTENT OF BIBLIOGRAPHY. This bibliography contains citations of all studies considered relevant by EPA in arriving at the positions and conclusions stated elsewhere in the Standard. Primary sources for studies in this bibliography have been the body of data submitted to EPA and its predecessor agencies in support of past regulatory decisions. Selections from other sources including the published literature, in those instances where they have been considered, will be included.

2. UNITS OF ENTRY. The unit of entry in this bibliography is called a "study." In the case of published materials, this corresponds closely to an article. In the case of unpublished materials submitted to the Agency, the Agency has sought to identify documents at a level parallel to the published article from within the typically larger volumes in which they were submitted. The resulting "studies" generally have a distinct title (or at least a single subject), can stand alone for purposes of review, and can be described with a conventional bibliographic citation. The Agency has attempted also to unite basic documents and commentaries upon them, treating them as a single study.

3. IDENTIFICATION OF ENTRIES. The entries in this bibliography are sorted numerically by "Master Record Identifier," or MRID, number. This number is unique to the citation, and should be used at any time specific reference is required. It is not related to the six-digit "Accession Number" which has been used to identify volumes of submitted studies; see paragraph 4(d)(4) below for a further explanation. In a few cases, entries added to the bibliography late in the review may be preceded by a nine-character temporary identifier. These entries are listed after all MRID entries. This temporary identifier number is also to be used whenever specific reference is needed.

4. FORM OF ENTRY. In addition to the Master Record Identifier (MRID), each entry consists of a citation containing standard elements followed, in the case of material submitted to EPA, by a description of the earliest known submission. Bibliographic conventions used reflect the standards of the American National Standards Institute (ANSI), expanded to provide for certain special needs.

a. **Author.** Whenever the Agency could confidently identify one, the Agency has chosen to show a personal author. When no individual was identified, the Agency has shown an identifiable laboratory or testing facility as author. As a last resort, the Agency has shown the first submitter as author.

b. **Document Date.** When the date appears as four digits with no question marks, the Agency took it directly from the document. When a four-digit date is followed by a question mark, the bibliographer deduced the date from evidence in the document. When the date appears as (19??), the Agency was unable to determine or estimate the date of the document.

c. **Title.** In some cases, it has been necessary for Agency bibliographers to create or enhance a document title. Any such editorial insertions are contained between square brackets.

d. **Trailing Parentheses.** For studies submitted to the Agency in the past, the trailing parentheses include (in addition to any self-explanatory text) the following elements describing the earliest known submission:

   (1) **Submission Date.** The date of the earliest known submission appears immediately following the word "received."

   (2) **Administrative Number.** The next element, immediately following the word "under," is the registration number, experimental use permit number, petition number, or other administrative number associated with the earliest known submission.

   (3) **Submitter.** The third element is the submitter, following the phrase "submitted by." When authorship is defaulted to the submitter, this element is omitted.

   (4) **Volume Identification (Accession Numbers).** The final element in the trailing parentheses identifies the EPA accession number of the volume in which the original submission of the study appears. The six-digit accession number follows the symbol "CDL," standing for "Company Data Library." This accession number is in turn followed by an alphabetic suffix which shows the relative position of the study within the volume. For example, within accession number 123456, the first study would be 123456-A; the second, 123456-B; the 26th, 123456-Z; and the 27th, 123456-AA.

OFFICE OF PESTICIDE PROGRAMS
REGISTRATION STANDARD BIBLIOGRAPHY
Citations Considered to be Part of the Data Base Supporting Registrations Under the Bendiocarb Standard

MRID	CITATION
00026442	Turnbull, G.J.; Brooks, P.N. (1979) NC 6897 Toxicity and Tumorigenicity to Rats in Long-Term Dietary Administration: Summary of Ophthalmic Data. (Unpublished study received Jan 10, 1980 under 8G2129; prepared by Fisons, Ltd. and Huntingdon Research Center, submitted by Fisons Corp., Agricultural Chemicals Div., Bedford, Mass.; CDL:099194-A)
00027580	Hunter, B.; Watson, M.; Heywood, R.; et al. (1978) NC 6897: Toxicity and Tumorigenicity to Rats in Long-Term Dietary Administration (Interim Report--Reproductive Phase and Main Phase 0-26 Weeks): NC 6897/T121. (Unpublished study received Sep 15, 1978 under 10065-EX-13; prepared by Huntingdon Research Centre, submitted by Fisons Corp., Agricultural Chemicals Div., Bedford, Mass.; CDL:097414-A)
00038437	Hoerger, F.; Kenaga, E.E. (1972) Pesticide residues on plants: Correlation of representative data as a basis for estimation of their magnitude in the environment. Pages 9-28, In Environmental Quality and Safety: Vol. I: Global Aspects of Chemistry, Toxicology and Technology as Applied to the Environment. Edited by Frederick Coulston and Friedhelm Korte. Stuttgart, Germany: Georg Thieme Publishers; New York, N.Y.: Academic Press, Inc. (Also in unpublished submission received Feb 14, 1973 under 1F1075; submitted by Dow Chemical U.S.A., Midland, Mich.; CDL: 092141-T)
00046484	Cuthbert, J.A.; Hose, P.A.; Carr, S. (1980) Sensitisation Potential of Ficam 80W: Report No. 1791; IRI Project No. 416149; FAD Study No. 80074. (Unpublished study received Sep 12, 1980 under 40546-7; prepared by Inveresk Research International, Scotland, submitted by Fison, Inc., Bedford, Mass.; CDL: 243232-A)
00050816	Cuthbert, J.A. (1978) Technical Bendiocarb: Primary Skin Irritancy Study on Rabbits: IRI Project No. 410901. (Unpublished study received Mar 26, 1980 under 40546-6; prepared by Inveresk Research International, Scotland, submitted by Fisons, Inc., Bedford, Mass.; CDL:242063-B)
00050817	Cuthbert, J.A. (1979) Technical Bendiocarb ex Muskegon: Primary Eye Irritancy in Rabbits: Report No. 1572; IRI Project No. 414602. (Unpublished study received Mar 26, 1980 under 40546-6; prepared by Inveresk Research International, Scotland, submitted by Fisons, Inc., Bedford, Mass.; CDL:242063-C)

OFFICE OF PESTICIDE PROGRAMS
REGISTRATION STANDARD BIBLIOGRAPHY
Citations Considered to be Part of the Data Base Supporting Registrations Under the Bendiocarb Standard

MRID	CITATION
00056091	Noakes, D.N. (1974) The Teratogenicity of NC 6897 to the Rat: Report No. Tox/74/133-37. (Unpublished study received Apr 22, 1974 under 10065-EX-3; prepared by Fisons, Ltd., England, submitted by Fisons Corp., Agricultural Chemicals Div., Bedford, Mass.; CDL:222237-A)
00056092	Fink, R.; Reno, F.E. (1974) Final Report: Eight-Day Dietary LC50--Bobwhite Quail: Project No. 378-124. (Unpublished study received Apr 22, 1974 under 10065-EX-3; prepared by Environmental Sciences Corp., submitted by Fisons Corp., Agricultural Chemicals Div., Bedford, Mass.; CDL:222237-B)
00056466	Kenaga, E.E. (1973) Factors to be considered in the evaluation of the toxicity of pesticides to birds in their environment. Pages 166-181, In Environmental Quality and Safety: Global Aspects of Chemistry, Toxicology and Technology As Applied to the Environment: Vol. II. Edited by F. Coulston and F. Korte. Stuttgart, W. Germany: Georg Thieme Publishers; New York, N.Y.: Academic Press, Inc. (Also in unpublished submission received Jun 21, 1976 under 464-512; submitted by Dow Chemical U.S.A., Midland, Mich.; CDL:224700-G)
00057230	Tucker, M.L. (1974) A Report Prepared for Fisons: NC6897--Teratogenicity Study in the Rat: Report TOX/74/133-48. (Unpublished study received Sep 10, 1975 under 10065-3; prepared by Consultox Laboratories, Ltd., England, submitted by Fisons Corp., Agricultural Chemicals Div., Bedford, Mass.; CDL:140162-A)
00058287	Sanderson, D.M. (1970) The Toxicology of NC 6897: Acute Toxicity to the Rat of Technical Grade NC 6897: TOX/70/133/7. (Unpublished study received Feb 14, 1974 under 10065-3; prepared by Fisons, Ltd., England, submitted by Fisons Corp., Agricultural Chemicals Div., Bedford, Mass.; CDL:221407-J)
00058288	Gates, D.A. (1970) Letter sent to D. Sanderson dated Feb 11, 1970: Fish toxicity of NC 6897: BIOSC/70/MF/1. (Unpublished study received Feb 14, 1974 under 10065-3; prepared by Fisons, Ltd., England, submitted by Fisons Corp., Agricultural Chemicals Div., Bedford, Mass.; CDL:221407-W)
00058740	Ross, D.B.; Roberts, N.L.; Cameron, D.M.; et al. (1978) Examination of NC 6897 for Neurotoxicity in the Domestic Hen: FPL 247 NT/8546. (Unpublished study received Dec 6, 1978 under 40546-1; prepared by Huntingdon Research Centre, England, submitted by Fisons, Inc., Bedford, Mass.; CDL:236557-D)

OFFICE OF PESTICIDE PROGRAMS
REGISTRATION STANDARD BIBLIOGRAPHY
Citations Considered to be Part of the Data Base Supporting Registrations Under the Bendiocarb Standard

MRID	CITATION
00058742	Tesh, J.M.; Bartlett, A.; Tesh, S.A.; et al. (1978) NC 6897: Multigeneration Study in the Rat: LSR Report No. 78/FON4/214. Interim rept. (Unpublished study received Dec 6, 1978 under 40546-1; prepared by Fisons, Ltd., England, submitted by Fisons, Inc., Bedford, Mass.; CDL:236557-F)
00059257	Fisons, Limited (1973?) Ficam W Stability Data--24 Months. (Unpublished study received Feb 14, 1974 under 10065-3; submitted by Fisons Corp., Agricultural Chemicals Div., Bedford, Mass.; CDL: 221407-G)
00059262	Ben-Dyke, R. (1972) The Toxicology of NC 6897: Acute Dermal Toxicity of 1972 Technical Material: TOX/72/133-21. (Unpublished study received Feb 14, 1974 under 10065-3; prepared by Fisons, Ltd., England, submitted by Fisons Corp., Agricultural Chemicals Div., Bedford, Mass.; CDL:221407-M)
00059263	Sanderson, D.M. (1971) The Toxicology of NC 6897: Specific Antidotal Therapy: TOX/71/133/17. (Unpublished study received Feb 14, 1974 under 10065-3; prepared by Fisons, Ltd., England, submitted by Fisons Corp., Agricultural Chemicals Div., Bedford, Mass.; CDL:221407-N)
00059264	Sanderson, D.M. (1972) Toxicology of NC 6897: 15-Dose Cumulative Dermal Study with Ficam 80 in Male Rats: TOX/72/133/19. (Unpublished study received Feb 14, 1974 under 10065-3; prepared by Fisons, Ltd., England, submitted by Fisons Corp., Agricultural Chemicals Div., Bedford, Mass.; CDL:221407-O)
00059266	Sanderson, D.M. (1971) The Toxicology of NC 6897: Symptoms and Cholinesterase Inhibition in the Rat following Single or Multiple Oral Doses: TOX/71/133/12. (Unpublished study received Feb 14, 1974 under 10065-3; prepared by Fisons, Ltd., England, submitted by Fisons Corp., Agricultural Chemicals Div., Bedford, Mass.; CDL:221407-R)
00059267	Sanderson, D.M. (1970) The Toxicology of NC 6897: 3-Month Dietary Toxicity Test on NC 6897 in the Rat: TOX/70/133/6. (Unpublished study received Feb 14, 1974 under 10065-3; prepared by Fisons, Ltd., England, submitted by Fisons Corp., Agricultural Chemicals Div., Bedford, Mass.; CDL:221407-S)
00059268	Sanderson, D.M. (1969) The Toxicology of NC 6897: Cumulative Toxicity of High Doses to the Female Rat: TOX/69/133/2. (Unpublished study received Feb 14, 1974 under 10065-3; prepared by Fisons, Ltd., England, submitted by Fisons Corp., Agricultural Chemicals Div., Bedford, Mass.; CDL:221407-T)

OFFICE OF PESTICIDE PROGRAMS
REGISTRATION STANDARD BIBLIOGRAPHY
Citations Considered to be Part of the Data Base Supporting Registrations Under the Bendiocarb Standard

MRID	CITATION
00059269	Sanderson, D.M.; Hermoso-Perez, C. (1969) The Toxicology of NC 6897: Cumulative Toxicity and Anticholinesterase Action of Low Doses to the Female Rat: TOX/69/133/3. Includes method dated Dec 1969 entitled: Measurement of blood cholinesterase activity by the Ellman method. (Unpublished study including Med/912, received Feb 14, 1974 under 10065-3; prepared by Fisons, Ltd., England, submitted by Fisons Corp., Agricultural Chemicals Div., Bedford, Mass.; CDL:221407-U)
00059272	Fraser, W.D.; Jenkins, G. (1973) The Acute Toxicity of Ficam to Blue Gill (Lepomis macrochirus): FPL/73625. (Unpublished study received Feb 14, 1974 under 10065-3; prepared by Huntingdon Research Centre, England, submitted by Fisons Corp., Agricultural Chemicals Div., Bedford, Mass.; CDL:221407-Y)
00059273	Fraser, W.D.; Jenkins, G. (1973) The Acute Toxicity of Ficam to Rainbow Trout (Salmo gairdneri): FPL/73931. (Unpublished study received Feb 14, 1974 under 10065-3; prepared by Huntingdon Research Centre, England, submitted by Fisons Corp., Agricultural Chemicals Div., Bedford, Mass.; CDL:221407-Z)
00059275	Sanderson, D.M.; Hounsell, I.A. (1969) The Toxicology of NC 6897: Test for Neurotoxicity of NC 6897 to the Chicken: TOX/69/133/5. (Unpublished study received Feb 14, 1974 under 10065-3; prepared by Fisons, Ltd., England, submitted by Fisons Corp., Agricultural Chemicals Div., Bedford, Mass.; CDL:221407-AB)
00059277	Ben-Dyke, R. (1972) Chronic Environmental Exposure of Cats in a Room Treated with Ficam: TOX/72/133-14. (Unpublished study received Feb 14, 1974 under 10065-3; prepared by Fisons, Ltd., England, submitted by Fisons Corp., Agricultural Chemicals Div., Bedford, Mass.; CDL:221407-AD)
00060611	Drummond, P.; Kemp, A.; Hounsell, I.A.G.; et al. (1976) The Effects of the Acute Oral Administration of NC 6897 80 WP to Male Volunteers: Report No. TOX/76/133-58. (Unpublished study received Dec 29, 1977 under 40546-1; prepared by Fisons, Ltd., England, submitted by Fisons, Inc., Bedford, Mass.; CDL:232539-B)
00060613	Adcock, J.W.; Challis, I.R. (1976) The Pharmacokinetics and Metabolism of Bendiocarb in Man: Metab/76/13. (Unpublished study received Dec 29, 1977 under 40546-1; prepared by Fisons, Ltd., England, submitted by Fisons, Inc., Bedford, Mass.; CDL: 232539-D)

OFFICE OF PESTICIDE PROGRAMS
REGISTRATION STANDARD BIBLIOGRAPHY
Citations Considered to be Part of the Data Base Supporting Registrations Under the Bendiocarb Standard

MRID	CITATION
00060614	Challis, I.R.; Adcock, J.W. (1976) The Metabolism of 14C-Bendiocarb in the Rat: Metab/76/11. (Unpublished study received Dec 29, 1977 under 40546-1; prepared by Fisons, Ltd., England, submitted by Fisons, Inc., Bedford, Mass.; CDL:232539-E)
00060616	Challis, I.R.; Adcock, J.W. (1977) The Metabolism of Bendiocarb in the Mouse: Metab/77/15. (Unpublished study received Dec 29, 1977 under 40546-1; prepared by Fisons, Ltd., England, submitted by Fisons, Inc., Bedford, Mass.; CDL:232539-G)
00060617	Pearce, J.C.; Warner, P.A.; Adcock, J.W. (1977) The Metabolism of Bendiocarb in the Mouse (Strain CDI): Metab/77/30. (Unpublished study received Dec 29, 1977 under 40546-1; prepared by Fisons, Ltd., England, submitted by Fisons, Inc., Bedford, Mass.; CDL:232539-H)
00060618	Challis, I.R.; Adcock, J.W. (1977) The Metabolism of Bendiocarb in the Hamster: Metab/77/14. (Unpublished study received Dec 29, 1977 under 40546-1; prepared by Fisons, Ltd., England, submitted by Fisons, Inc., Bedford, Mass.; CDL:232539-I)
00060619	Weir, R.J. (1974) 16-Week Subacute Toxicity Study in Dogs: NC 6897 Technical: LBI Project No. 2444: TOX/74/133-44. (Unpublished study received Dec 29, 1977 under 40546-1; prepared by Litton Bionetics, Inc., submitted by Fisons, Inc., Bedford, Mass., CDL:232539-K)
00062186	Warner, P.A.; Adcock, J.W.; Pearce, J.C. (1977) The Metabolism of 14C-Bendiocarb in the Dog: Metab/77/8. (Unpublished study received Dec 29, 1977 under 40546-1; prepared by Fisons, Ltd., England, submitted by Fisons, Inc., Bedford, Mass.; CDL:232539-J)
00064781	Drake, C.H. (1976) The Acute Toxicity of Technical NC 6897 (Bendiocarb) to Daphnia magna: BIOSC/76/E/15. (Unpublished study received Aug 24, 1977 under 40546-3; prepared by Fisons Ltd., England, submitted by Fisons, Inc., Bedford, Mass.; CDL:231412-A)
00067814	Fisons Corporation (1977) Chemical Product Specification: Bendiocarb: No. CR 14855/1. (Unpublished study received Feb 15, 1977 under 10065-EX-9; CDL:228722-A)
00067815	Fisons Corporation (1977) Chemical Product Specification: Bendiocarb: No. CR 14888. (Unpublished study received Feb 15, 1977 under 10065-EX-9; CDL:228722-B)

OFFICE OF PESTICIDE PROGRAMS
REGISTRATION STANDARD BIBLIOGRAPHY
Citations Considered to be Part of the Data Base Supporting Registrations Under the Bendiocarb Standard

MRID	CITATION
00070941	Fisons, Limited (1980) Chemical Composition Statement: Ficam: No. CR 15458. (Unpublished study received Mar 18, 1981 under 45639-EX-1; submitted by FBC Chemicals, Inc., Wilmington, Del.; CDL:244638-A)
00070942	Fisons, Limited (1980) Storage Stability Data on Ficam ULV Mk I (CR 15458). (Unpublished study received Mar 18, 1981 under 45639-EX-1; submitted by FBC Chemicals, Inc., Wilmington, Del.; CDL:244638-B)
00071973	Fink, R.; Reno, F.E. (1975) Final Report: Eight-day Dietary LC50--Mallard Ducks: Project No. 378-126. (Unpublished study received Sep 15, 1978 under 10065-EX-13; prepared by Hazleton Laboratories America, Inc., submitted by Fisons Corp., Agricultural Chemicals Div., Bedford, Mass.; CDL:097415-D)
00071978	Kemp, A.; Brooks, P.N.; Hounsell, I.A.G.; et al. (1978) The Effects of the Daily Oral Administration of NC 7312 to Male and Female Rats for 16 Days: Report Tox/78/133-119. (Unpublished study received Sep 15, 1978 under 10065-EX-13; prepared by Fisons, Ltd., England, submitted by Fisons Corp., Agricultural Chemicals Div., Bedford, Mass.; CDL:097415-J)
00071980	Ross, D.B.; Roberts, N.L.; Cameron, D.M. (1978) The Acute Oral Toxicity (LD50) of NC 6897 to the Mallard Duck: FPL 245 WL/77961; TOX/78/133-134. (Unpublished study received Sep 15, 1978 under 10065-EX-13; prepared by Huntingdon Research Centre, England, submitted by Fisons Corp., Agricultural Chemicals Div., Bedford, Mass.; CDL:097415-M)
00071981	Serota, D.G.; Fezio, W.L. (1978) A Chronic Toxicity and Carcinogenicity Study in Mice: NC 6897: TOX/78/133-143. Twenty-four week progress rept. (Unpublished study received Sep 15, 1978 under 10065-EX-13; prepared by Hazleton Laboratories America, Inc., submitted by Fisons Corp., Agricultural Chemicals Div., Bedford, Mass.; CDL:097415-N)
00071982	Chesterman, H.; Heywood, R.; Allen, T.R.; et al. (1978) NC 6897: Toxicity Study in Beagle Dogs (Interim Report: Dietary Intake for 26 Weeks): FPL 231/7857. (Unpublished study received Sep 15, 1978 under 10065-EX-13; prepared by Huntingdon Research Centre, England, submitted by Fisons Corp., Agricultural Chemicals Div., Bedford, Mass.; CDL:097415-O)

OFFICE OF PESTICIDE PROGRAMS
REGISTRATION STANDARD BIBLIOGRAPHY
Citations Considered to be Part of the Data Base Supporting Registrations Under the Bendiocarb Standard

MRID	CITATION
00071986	Hemmings, P.A. (1978) The Acute Toxicity of Technical Bendiocarb to Bluegill (Lepomis macrochirus): METAB/78/10. (Unpublished study received Sep 15, 1978 under 10065-EX-13; prepared by Fisons, Ltd., England, submitted by Fisons Corp., Agricultural Chemicals Div., Bedford, Mass.; CDL:097414-C)
00071987	Hemmings, P.A. (1978) The Acute Toxicity of Technical Bendiocarb to Rainbow Trout (Salmo gairdneri): METAB/78/18. (Unpublished study received Sep 15, 1978 under 10065-EX-13; prepared by Fisons, Ltd., England, submitted by Fisons Corp., Agricultural Chemicals Div., Bedford, Mass.; CDL:097414-D)
00081988	Rohm & Haas Company (19??) Acute Oral Toxicity of Karathane to Male Albino Rabbits. (Unpublished study received Mar 2, 1958 under PP0171; CDL:090198-I)
00075522	BFC Chemicals, Incorporated (1978) Bendiocarb Formulation Manual. (Compilation; unpublished study received May 8, 1981 under 45639-EX-3; CDL:245227-A)
00076599	Fisons, Limited (1980) Chemical Composition Statement for Ficam ULV. Klearol Formulation MK I (CR 15458). (Min/max Values for % Composition of Inert Ingredients): NC 6897/C 145. (Unpublished study received May 8, 1981 under 45639-EX-3; submitted by BFC Chemicals, Inc., Wilmington, Del.; CDL:245227-B)
00076602	Fisons, Limited (1980) Storage Stability Data on Ficam ULV Klearol Formulation MK I (CR 15458) (Accelerated and Long-term Storage): NC 6897/C 147. (Unpublished study received May 8, 1981 under 45639-EX-3; submitted by BFC Chemicals, Inc., Wilmington, Del.; CDL:245227-E)
00079414	FBC Limited (1978) Basic Physical and Chemical Characteristics of Bendiocarb. 2nd ed. (Unpublished study received Aug 13, 1981 under 1F2553; submitted by BFC Chemicals, Inc., Wilmington, Del.; CDL:070218-A)
00079415	BFC Chemicals, Incorporated (1979) Stability in Storage. (Unpublished study received Aug 13, 1981 under 1F2553; CDL:070218-B)
00079419	Warner, P.A.; Adcock, J.W. (1980) The Dermal Absorption of 14C-Bendiocarb in Man: METAB/80/36. (Unpublished study received Aug 13, 1981 under 1F2553; prepared by FBC Ltd., England, submitted by BFC Chemicals, Inc., Wilmington, Del.; CDL:070219-C)

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REGISTRATION STANDARD BIBLIOGRAPHY
Citations Considered to be Part of the Data Base Supporting Registrations Under the Bendiocarb Standard

MRID CITATION

00079422 McConville, M.; McGregor, D.B. (1979) Testing the Mutagenic Activity of Technical NC 6997: Report No. 1361; Fisons TOX/79/133-178. (Unpublished study received Aug 13, 1981 under 1F2553; prepared by Inveresk Research International, Scotland, submitted by BFC Chemicals, Inc., Wilmington, Del.; CDL:070219-F)

00079423 McConville, M.; Harris, W.J. (1979) NC 7312: Ames Test for Mutagenic Activity: Report No. 1453; Fisons TOX/79/158-2. (Unpublished study received Aug 13, 1981 under 1F2553; prepared by Inveresk Research International, Scotland, submitted by BFC Chemicals, Inc., Wilmington, Del.; CDL:070219-G)

00079424 Robel, R.J.; Harakal, D.S.; Middendorf, S.M.; et al. (1979) Effects of Field Application of a Granular Formulation of NC 6897 on Bobwhites: Fisons TOX/80/133-187. Final rept. (Unpublished study received Aug 13, 1981 under 1F2553; prepared by Kansas State Univ., Div. of Biology, submitted by BFC Chemicals, Inc., Wilmington, Del.; CDL:070219-I)

0079425 Chesterman, H.; Heywood, R.; Allen, T.R.; et al. (1980) NC 6897: Toxicity Study in Beagle Dogs: Final Report: Dietary Intake for 104 Weeks: FPL/231/791967; Fisons TOX/80/133-192. (Unpublished study received Aug 13, 1981 under 1F2553; prepared by Huntingdon Research Centre, England, submitted by BFC Chemicals, Inc., Wilmington, Del.; CDL:070220-A)

00079426 Turnbull, G.J.; Jackson, C.M.; Tesh, J.M.; et al. (1981) Rabbit Teratology Tests with Technical NC 6897: Summary and Assessment: TOX/81/133-230. (Unpublished study received Aug 13, 1981 under 1F2553; prepared by FBC Ltd., England and Life Science Research, England, submitted by BFC Chemicals, Inc., Wilmington, Del.; CDL:070231-A)

00079427 Challis, I.R.; Swalwell, L.M. (1980) The Metabolism of Bendiocarb in the Pregnant Rabbit: METAB/80/14. (Unpublished study received Aug 13, 1981 under 1F2553; prepared by Fisons, Ltd., England, submitted by BFC Chemicals, Inc., Wilmington, Del.; CDL:070231-B)

00080039 Tesh, J.M.; Bartlett, A.; Tesh, S.A.; et al. (1980) Technical NC 6897: Effects of Dietary Administration upon Reproduction Performance and Teratogenic Response of Rats Treated Continuously through Three Successive Generations: Volume I: LSR Report No. 80/FON004/555; Study No. Tox 76002. (Unpublished study received Aug 13, 1981 under 1F2553; prepared by Life Science Research, England, submitted by BFC Chemicals, Inc., Wilmington, Del.; CDL:070228-A; 0702290; 0702308)

OFFICE OF PESTICIDE PROGRAMS
REGISTRATION STANDARD BIBLIOGRAPHY
Citations Considered to be Part of the Data Base Supporting Registrations Under the Bendiocarb Standard

MRID CITATION

00080040 Serota, D.G.; Fezio, W.L.; Voelker, R.W. (1980) A Chronic Toxicity and Carcinogenicity Study in Mice: NC 6897: Volume 1. Final rept. (Unpublished study received Aug 13, 1981 under 1F2553; prepared by Hazleton Laboratories America, Inc., submitted by BFC Chemicals, Inc., Wilmington, Del.; CDL:070221-A; 070222; 070223)

00080048 Fisons, Limited (1978) Physical and Chemical Properties of Bendiocarb. (Unpublished study received Aug 21, 1981 under 1G2558; submitted by BFC Chemicals, Inc., Wilmington, Del.; CDL:070243-A)

00081271 Huntingdon Research Centre (1978) NC 6897: Toxicity and Tumorigenicity to Rats in Long-term Dietary Administration: (Interim report--Reproductive Phase and Main Phase 0-52 Weeks): FPL 226/78720; unpublished study, including letters dated Jul 13, 1979 from G.J. Turnbull to W.L. Ekins and Aug 27, 1979 from P.F. Smith to Frank Sanders, received Aug 30, 1979 under 40546-1; submitted by Fisons, Inc., Bedford, Mass.; CDL:240902-B)

00081272 Chesterman, H.; Heywood, R.; Allen, T.R.; et al. (1978) NC 6897: Toxicity Study in Beagle Dogs: (Interim Report: Dietary Intake for 52 Weeks): FPL 231/78848: TOX/78/133-145. (Unpublished study, including letter dated Aug 27, 1979 from P.F. Smith to Frank Sanders, received Aug 30, 1979 under 40546-1; prepared by Huntingdon Research Centre, England, submitted by Fisons, Inc., Bedford, Mass.; CDL:240903-A)

00081273 Serota, D.G.; Fezio, W.L. (1979) A Chronic Toxicity and Carcinogenicity Study in Mice: Project No. 378-134; TOX/79/133/176. Fifty-six week progress rept. (Unpublished study received Aug 30, 1979 under 40546-1; prepared by Hazleton Laboratories America, Inc., submitted by Fisons, Inc., Bedford, Mass.; CDL: 240903-B)

00081596 Hunter, B.; Watson, M.; Heywood, R.; et al. (1981) NC 6897: Toxicity and Tumorigenicity to Rats in Long-term Dietary Administration: (Final Report--Reproductive Phase and Main Phase): Volume I: FPL 226/79978. (Unpublished study received Aug 13, 1981 under 1F2553; prepared by Huntingdon Research Centre, England, submitted by BFC Chemicals, Inc., Wilmington, Del.; CDL: 070224-A; 070225; 070226; 070227)

OFFICE OF PESTICIDE PROGRAMS
REGISTRATION STANDARD BIBLIOGRAPHY
Citations Considered to be Part of the Data Base Supporting Registrations Under the Bendiocarb Standard

MRID	CITATION
00086696	Fink, R. (1981) Final Report: Simulated Field Study--Bobwhite Quail and Mallard Duck: FICAM W: Project No. 177-101; BFC Project No. TOX 81028. (Unpublished study, including letter dated Oct 27, 1981 from P. Smith-Paul to Jay S. Ellenberger, received Oct 30, 1981 under 45639-1; prepared by Wildlife International, Ltd., submitted by BFC Chemicals, Inc., Wilmington, Del.; CDL: 246181-A)
00086785	Challis, I.R. (1979) The Metabolism and Disposition of Bendiocarb in the Rat: METAB/79/15. (Unpublished study received Oct 16, 1981 under 1F2553; prepared by Fisons Ltd., England, submitted by BFC Chemicals, Inc., Wilmington, Del.; CDL:070403-A)
00089731	Sanderson, D.M. (1971) The Toxicology of NC 6897: The Acute Inhalational Toxicity of NC 6897 Vapour to Rats: TOX/71/133/11. (Unpublished study received Apr 12, 1974 under 10065-3; prepared by Fisons, Ltd., England, submitted by Fisons Corp., Agricultural Chemicals Div., Bedford, Mass.; CDL:050984-D)
00093737	Jeang, C.L.; Li, G.C. (1980) Screening of pesticides for mutagenicity in the microbial system II. With mammalian microsomal activation. National Science Council Monthly 8(6):551-559. (Submitter 3703; Japanese text; also in unpublished submission received Jan 20, 1982 under 1258-812; submitted by Olin Corp., Stamford, Conn.; CDL:070605-H)
00104244	Jeang, C.L.; Li, G.C. (1978) Screening of pesticides for mutagenicity in the microbial systems. National Science Council Monthly VI(8):780-788. (Submitter 3704; Japanese text; also in unpublished submission received Jan 20, 1982 under 1258-812; submitted by Olin Corp., Stamford, Conn.; CDL:070605-I)
00108888	Ross, D.; Roberts, N.; Cameron, D. (1978) The Subacute Dietary LC50 of NC 6897 to the Bobwhite Quail: FPL 258WL/78485; TOX/78/133-137. (Unpublished study received Dec 6, 1978 under 40546-1; prepared by Huntingdon Research Centre, Eng., submitted by Fisons, Inc., Bedford, MA; CDL:236558-B)
00108889	Ross, D.; Roberts, N.; Cameron, D. (1978) The Subacute Dietary Toxicity (LC50) of NC 6897 to the Mallard Duck: FPL 270-WL/78705; TOX/78/133-142. (Unpublished study received Dec 6, 1978 under 40546-1; prepared by Huntingdon Research Centre, Eng., submitted by Fisons, Inc., Bedford, MA; CDL:236558-C)

OFFICE OF PESTICIDE PROGRAMS
REGISTRATION STANDARD BIBLIOGRAPHY
Citations Considered to be Part of the Data Base Supporting Registrations Under the Bendiocarb Standard

MRID	CITATION
00109407	BFC Chemicals, Inc. (1981) Storage Stability: Fican W Plus. (Compilation; unpublished study received Jul 22, 1982 under 45639-66; CDL:247935-E)
00118502	BFC Chemicals, Inc. (19??) Environmental and Residue Chemistry: Bendiocarb SC. (Unpublished study received Dec 1, 1982 under 45639-EX-10; CDL:071274-E)
00118957	Fisons, Inc. (1975) Chemistry Data on Ficam. (Compilation; unpublished study received Dec 29, 1977 under 40546-5; CDL:232540-A)
00121240	Fisons, Ltd. (1973) Ficam W: Stability Data--24 Months. (Unpublished study received Mar 19, 1974 under 10065-EX-3; submitted by Fisons Corp., Agricultural Chemicals Div., Bedford, MA; CDL:223597-A)
00121629	Fisons, Inc. (1978) Chemistry: Ficam D. (Compilation; unpublished study received Oct 3, 1978 under 40546-3; CDL:235229-A)
00121633	Fisons, Inc. (1978) Product Chemistry: NC 6897 Technical. (Compilation; unpublished study received Oct 31, 1978 under 40546-6; CDL:235620-A)
00121635	Ross, D.; Roberts, N.; Fairley, C. (1979) The Acute Oral Toxicity (LD50) of Technical NC 6897 to the Bobwhite Quail: TOX/78/133-136; T126. (Unpublished study received Apr 30, 1979 under 40546-1; prepared by Huntingdon Research Centre, Eng., submitted by Fisons, Inc., Bedford, MA; CDL:238256-B)
00121640	Dagnall, R.; Piccirillo, V.; Peterson, K. (1978) One-generation Reproduction Study in Mallard Ducks--NC 6897 Technical: Project No. 378-133; T123. Rev. final rept. (Unpublished study received Apr 30, 1979 under 40546-1; prepared by Hazleton Laboratories America, Inc., submitted by Fisons, Inc., Bedford, MA; CDL:238256-I)
00121641	Dagnall, R.; Piccirillo, V.; Najarian, G. (1978) One-generation Reproduction Study in Bobwhite Quail--NC 6897: Project No. 378-132; T111. Rev. final rept. (Unpublished study received Apr 30, 1979 under 40546-1; prepared by Hazleton Laboratories America, Inc., submitted by Fisons, Inc., Bedford, MA; CDL:238256-J)

OFFICE OF PESTICIDE PROGRAMS
REGISTRATION STANDARD BIBLIOGRAPHY
Citations Considered to be Part of the Data Base Supporting Registrations Under the Bendiocarb Standard

MRID	CITATION
00122304	Ben-Dyke, R. (1972) The Toxicology of NC 6897: Acute Dermal Toxicity of 1972 Technical Material: TOX/72/133-21. (Unpublished study received 1972 under unknown admin. no.; prepared by Fisons Ltd., Eng., submitted by Fisons Corp., Agricultural Chemicals Div., Bedford, MA; CDL:127691-C)
00122312	Fisons, Inc. (1977) Product Chemistry: Ficam W. (Compilation; unpublished study received Jun 20, 1977 under 40546-1; CDL: 230654-A)
00122319	Kemp, A.; Jackson, C.; Yates, S. (1977) A Test for the Induction of Dominant Lethal Mutations in Male Rats by NC 6897: Report T-65; Report No. Tox/77/133-76. (Unpublished study received Jan 16, 1978 under 40546-1; prepared by Fisons, Ltd., Eng., submitted by Fisons, Inc., Bedford, MA; CDL:232670-E)
00122322	Sanderson, D. (1971) Acute Toxicity of Pure NC 6897: TOX/71/133/1. (Unpublished study received Jan 24, 1974 under 10065-3; prepared by Fisons, Ltd., Eng., submitted by Fisons Corp., Agricultural Chemicals Div., Bedford, MA; CDL:017011-C)
00122477	Fisons Corp. (1978) The Name, Chemical Identity, and Composition of the Pesticide Chemical: NC 6897 10 G. (Compilation; unpublished study received Sep 15, 1978 under 10065-EX-13; CDL: 097412-A)
00124123	Hunter, B.; Watson, M.; Prentice, D.; et al. (1982) NC 6897: Toxicity and Tumorigenicity to Rats in Long Term Dietary Administration: FPL 226/79978. (Unpublished study received Jul 7, 1982 under 45639-63; prepared by Huntingdon Research Centre, Eng., submitted by BFC Chemicals, Inc., Wilmington, DE; CDL:070956-A)
00128877	BFC Chemicals, Inc. (1983) Ficam ULV Particle Size Determinations from Leco Cold Fogging Ground Aerosol Equipment, Houston, Texas 1982. (Unpublished study received Jun 14, 1983 under 45639-67; CDL:250453-F)
00128879	Browne, P.M. & J.B. Reary. (1980) Residue monitoring during bendiocarb ULV mosquito trials in Louisiana, 1979. FBC data submission, Fisons Agrochemical Div. Ltd. Study No. R84
00137801	Nor-Am Chemical Co. (1984) Chemistry: Turcam SC Flowable Insecticide. (Compilation; unpublished study received Mar 23, 1984 under 45639-93; CDL:252859-A)
00141143	Nor-Am Chemical Co. (19??) Product Chemistry [for Ficam]. Unpublished study. 4 p.
00143507	Nor-Am Chemical Co. (1984) [Product Chemistry: [Turcam 5G]. Unpublished study. 2p.

OFFICE OF PESTICIDE PROGRAMS
REGISTRATION STANDARD BIBLIOGRAPHY
Citations Considered to be Part of the Data Base Supporting
Registrations Under the Bendiocarb Standard

MRID	CITATION
00143508	Nor-Am Chemical Co. (19??) Product Chemistry [on Bendicarb]. Unpublished study. 20 p.
00145046	Eastman Chemical Products, Inc. (1983) [Product Chemistry for Cutter Evergreen Scent Insect Repellent Pump Spray]. Unpublished compilation. 62 p.
00145703	BFC Chemicals (1978) [Product Chemistry Data - Technical Bendiocarb]. Unpublished compilation. 15 p.
00146640	FBC Limited (1981) Chemistry: Storage Stability Data on Ficam 20: FBC Report CPS 439/2. Unpublished study. 2 p.
00147587	FBC Limited (1981) Storage Stability Data on Ficam 20. Unpublished report. 2 p.
00148695	Balcomb, R.; Stevens, R.; Bowen, C. (1984) Toxicity of 16 granular insecticides to wild-caught songbirds. Bulletin of Environmental Contamination and Toxicology 33:302-307.
00152404	Nor-Am Chemical Co. (1978) Application for Registration of Turcam 5G Insecticide: Product Chemistry. Unpublished compilation. 18 p.
00158031	Fairfield American Corp. (19??) The Manufacturing Process [of Wasp & Hornet Killer No. 3]. Unpublished study. 1 p.
00158032	Fairfield American Corp. (19??) Discussion of Formation of Ingredients [of Wasp and Hornet Killer No. 3]. Unpublished study. 1 p.
00158033	Fairfield American Corp. (19??) Preliminary Analysis [and Certification of Ingredient Limits for Wasp and Hornet Killer No. 3]. Unpublished compilation. 3 p.
00158034	Wooldridge, D. (1981) Bendiocarb (NC 6897) Determination of Bendiocarb in Technical Bendiocarb by Reversed Phase Liquid Chromatography: AM No. 1300/2/1. Unpublished study prepared by FBC Limited. 13 p.
00158035	Fairfield American Corp. (19??) Physical and Chemical Characteristics [of Wasp and Hornet Killer No. 3]. Unpublished compilastudy. 3 p.
00158043	Fairfield American Corp. (19??) The Manufacturing Process [for Pyrenone Bendiocarb Roach and Ant Spray]. Unpublished study. 1 p.

OFFICE OF PESTICIDE PROGRAMS
REGISTRATION STANDARD BIBLIOGRAPHY
Citations Considered to be Part of the Data Base Supporting Registrations Under the Bendiocarb Standard

MRID CITATION

00158044 Fairfield American Corp. (19??) Discussion of Formation of Impurities [for Pyrenone Bendiocarb Roach and Ant Spray]. Unpublished study. 1 p.

00158045 Fairfield American Corp. (19??) Preliminary Analysis [and Certification of Ingredient Limits for Pyrenone Bendiocarb Roach and Ant Spray]. Unpublished compilation. 3 p.

00158047 Fairfield American Corp. (19??) Physical and Chemical Characteristics [of Pyrenone Bendiocarb Roach and Ant Spray]. Unpublished study. 4 p.

GS0409-001 Atkins, E.; Kellum, D. (1981) Reducing Pesticide Hazards to Honey Bees: Mortality Prediction Techiques and Integrated Management Strategies: Leaflet 2883. University of California, Division of Agricultural Sciences, Department of Entomology. Riverside, CA; 22 p.

GS0409-002 McCann, J. (1978) 96-Hour LC50: Bendiocarb 97.4%: Bluegill: Biological Report of Analysis: Static Jar Test #2371. Unpublished report prepared by Animal Biology, U.S. EPA Beltsville Laboratory. 3 p.

GS0409-003 McCann, J. (1978) 96-Hour LC50: Bendiocarb 97.4%: Rainbow Trout: Biological Report of Analysis: Static Jar Test #2369. Unpublished report prepared by Animal Biology, U.S. EPA Beltsville Laboratory. 4 p.

GS0409-004 McCann, J. (1979) 96-Hour LC50: Bendiocarb 97.4%: Bluegill: Biological Report of Analysis: Static Jar Test #2412. Unpublished report prepared by Animal Biology, U.S. EPA Beltsville Laboratory. 6 p.

GS0409-005 McCann, J. (1979) 96-Hour LC50: Bendiocarb 97.4%: Bluegill: Biological Report of Analysis: Static Jar Test #2419. Unpublished report prepared by Animal Biology, U.S. EPA Beltsville Laboratory. 6 p.

GS0409-006 McCann, J. (1977) 96-Hour LC50: Bendiocarb (Ficam 76%): Bluegill: Biological Report of Analysis: Static Jar Test #1068. Unpublished report prepared by Animal Biology, U.S. EPA Beltsville Laboratory. 2 p.

APPENDIX V - FORMS

PRODUCT SPECIFIC DATA REPORT

EPA Reg. No.______________________ Date ______________________

Guidance Document for ______________________________________

Registration Guideline No.	Name of Test	Test not required for my product listed above (check below)	I am complying with data requirements by		(For EPA Use Only) Accession Numbers Assigned
			Citing MRID Number or EPA Accession Number	Submitting Data (Attached)	
§158.120 PRODUCT CHEMISTRY					
61-1	Identity of ingredients				
61-2	Statement of composition				
61-3	Discussion of formation of ingredients				
62-1	Preliminary analysis				
62-2	Certification of limits				
62-3	Analytical methods for enforcement limits				
63-2	Color				
63-3	Physical state				
63-4	Odor				
63-5	Melting point				
63-6	Boiling point				
63-7	Density, bulk-density, or specific gravity				
63-8	Solubility				
63-9	Vapor pressure				
63-10	Dissociation constant				
63-11	Octanol/water partition coefficient				
63-12	pH				

Registration Guideline No.	Name of Test	Test not required for my product listed above (check below)	I am complying with data requirements by		(For EPA Use Only) Accession Numbers Assigned
			Citing MRID Number or EPA Accession Number	Submitting Data (Attached)	
63-13	Stability				
63-14	Oxidizing/reducing reaction				
63-15	Flammability				
63-16	Explodability				
63-17	Storage stability				
63-18	Viscosity				
63-19	Miscibility				
63-20	Corrosion characteristics				
63-21	Dielectric breakdown voltage				
§158.135 TOXICOLOGY					
81-1	Acute oral toxicity, rat				
81-2	Acute dermal toxicity, rabbit				
81-3	Acute inhalation, toxicity, rat				
81-4	Primary eye irritation, rabbit				
81-5	Primary dermal irritation				
81-6	Dermal sensitization				

OMB Approval No. 2070-0057
Expiration Date 11/30/89

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GENERIC DATA EXEMPTION STATEMENT

EPA Product Registration Number: ______________

Registrant's Name and Address: ____________________________

____

As an authorized representative of the registrant of the product identified above, I certify that:

(1) I have read and am familiar with the terms of the Notice from EPA dated ___________ concerning a requirement for submission of "generic" data on the active ingredient _____________ named under FIFRA Section 3(c)(2)(B).

(2) My firm requests that EPA not suspend the registration of our product, despite our lack of intent to submit the generic data in question, on the grounds that the product contains the active ingredient solely as the result of the incorporation into the product of another product which contains that active ingredient, which is registered under FIFRA Section 3, and which is purchased by us from another producer.

(3) An accurate Confidental Statement of Formula(CSF) for the above-identified product is attached to this statement. That formula statement indicates, by company name, registration number, and product name, the source of the subject active ingredient in my firm's product, or

The CSF dated _________ on file with EPA is complete, current and accurate and contains the information requested on the current CSF Form No. 8570-4. The registered source(s) of the above named active ingredient in my product(s) is/are ______________________ and their registration number(s) is/are ______________ .

My firm will apply for an amendment to the registration prior to changing the source of the active ingredient in our product.

(4) I understand, and agree on behalf of my firm, that if at any time any portion of this Statement is no longer true, or if my firm fails to comply with the undertakings made in this Statement, my firm's product's registration may be suspended under FIFRA Section 3(c)(2)(B).

(5) I further understand that if my firm is granted a generic data exemption for the product, my firm relies on the efforts of other persons to provide the Agency with the required generic data. If the registrant(s) who have committed to generate and submit the required data fail to take appropriate steps to meet requirements or are no longer in compliance with this Notice's data requirements, the Agency will consider that both they and my firm are not in compliance and will normally initiate proceedings to suspend the registrations of my firm's product(s) and their product(s), unless my firm commits to submit and submits the required data in the specified time frame. I understand that, in such cases, the Agency generally will not grant a time extension for submitting the data.

Registrant's authorized representative: ______________________________
(Signature)

Dated: __________________ ______________________________
(Typed)

EPA Form 8570-27